AMERICAN
JOURNAL OF SURGERY

VOL. XXVI. SEPTEMBER, 1912. No. 9.

THE TREATMENT OF FRACTURES.*

GWILYM G. DAVIS, M.D.,
PHILADELPHIA, PA.

The subject of fractures is different from perhaps most other surgical subjects brought up for discussion because it is not, like them, of new growth, but is one of our old standbys that has done good service since the time of Hippocrates.

It has, however, taken advantage of the unrest of the present generation and, availing itself of the progress made in other lines, has made bold to acquire new characteristics. These new departures are seen most perhaps in the line of treatment, and, in opening this subject for discussion, it may perhaps be best to consider it in a more or less general manner with the mention of such personal views and observations as may present themselves in special directions.

Personally, I cannot see any very radical departure in many of the methods of treatment now compared with what they were 20 or more years ago. Nevertheless the subject has not been at a standstill. Our methods of diagnosis are more precise and a demand has arisen for more perfect results.

There has arisen in recent years a class of surgeons called orthopedic surgeons whose mission it is to correct deformities and restore usefulness to impaired members. They are a repair corps to whom are relegated the mistakes and failures of general surgical treatment with the idea of having the beauty and utility of the part improved.

Those who now treat fractures have to face the likelihood of having their results submitted to a critical board of experts, and if their work is not found to be satisfactory it is likely to be again taken in hand and measures taken to better it.

Thus the public has been educated to the point of expecting better results than formerly and deformities and disabilities following fractures which were then endured uncomplainingly now give rise to protests and efforts at betterment. The discovery of the methods of practical utilization of the *x*-ray made by Röntgen placed in the hands of the profession, and eventually also of the laity, a means of ascertaining very definitely not only the condition of the broken bone at the time of injury but also its condition finally as the result of treatment. By means of the *x*-rays we can determine the exact character of the break, can utilize them in guiding treatment and finally to demonstrate results.

This gives rise to the question: To what extent should the *x*-rays be used in diagnosis?

As a general proposition no means of acquiring knowledge of an injury should be neglected and in these days of malpractice suits the surgeon, for his own protection if for nothing else, will do well to have every fracture *x*-rayed when it is possible to do so.

The possession of a skiagraph of the fracture should not serve as an excuse for not making a careful examination. Many times it will be impossible for one reason or another to obtain a skiagraph of the injury and long intervals will pass in the treatment when knowledge of the condition present will depend on the personal skill of the attendant in the making of a local examination.

Fractures are more heterodox or varied in their manifestation than is the case with dislocations, and especially when both are present in the same injury the making of a skiagraph is almost essential. As to the method of treatment in vogue our knowledge of the bones and joints being better than formerly the same means are used in a more intelligent manner. The same wooden, wire and other splints are used. Plaster of Paris still is a favorite and extension holds sway almost as much as ever.

A new addition which has been given its greatest impetus by Mr. Lane, of London, is the fixation of recent fractures by open operation and the use of a metal plate.

The main bad results encountered are the presence of deformity, with its entailed disability and delay in union or even absolute failure to unite.

With most fractures I believe the use of suitable splints and supports, especially if guided by sufficiently frequent examinations by the *x*-ray, will give satisfactory results, both as regards function and deformity.

I have never been so ardent an admirer of the occlusive plaster of Paris dressing as have been

*Read, by invitation, before the Orthopedic Section of the N. Y. Academy of Medicine, April 19, 1912.

others. "No trust" has been my motto in the treatment of fractures and it has been my rule to keep all fractures accessible for examination at least until the period of fixation of the fragments, say about three weeks, and usually during the whole period of treatment. Most of the cases of bad results which have come under my observation have been the result of a failure to follow this practice. Only yesterday I saw a Colle's fracture which a friend had treated for two weeks on a splint and, with the fragments in good position, then put the arm in plaster. At the end of five weeks he removed the plaster and to his horror there was the silver forked deformity reproduced. It is hardly enough to explain the bad result as consequent to a bad application of the plaster because he applied it about as well as the average surgeon would do.

If plaster of Paris is to be used in the upper extremity it is better to make two side or antero-posterior splints by folding the bandage repeatedly on itself. These splints can then be removed once or twice a week and absolute assurance felt as to the proper progress and condition of the parts.

The same course can be taken with fractures of the lower extremity with equal satisfaction.

The orthopedic surgeon from his familiarity and skill in working with plaster is better fitted than others to use it in the treatment of recent fractures

In regard to the operative treatment of fractures of recent origin I think its employment should be occasional rather than hatibual.

The surgery of the present day general surgeon is nothing if it is not operative, and in looking for new fields to conquer his eye has lighted on the subject of recent fractures but he has to contest the field now, not with the general surgical conservative methods of the past, but with the up-to-date orthopedic measures of the present. The general surgeon has neglected the conservative treatment of fractures in favor of visceral surgery to so great extent that many of them ignore them altogether and it is no wonder that they do not feel qualified to so treat them. This may be an excuse but is no justification for the indiscriminate resort to operative treatment in recent fractures. They would do well to study such results as Peckham showed in his recent article on fractures of the upper end of the humerus in the *American Journal of Orthopedic Surgery*. Fashion is not a safe guide to follow and even though it be the fashion now to use steel plates for almost all operations on fractures it is nevertheless true that fixation can in many cases be secured by better means.

Let us, however, go from the general to the particular. The clavicle vies with the radius in being the bone most frequently broken. Treated conservatively, in adults, it almost constantly heals with deformity and that too often of marked degree. Here—one would suppose—is just the bone suited for radical measures but, contrary to what might be expected, it heals readily and rapidly, nonunion is very rare and notwithstanding the deformity almost perfect function is re-established. Of its two places of fracture, that at is outer end, between the coracoid process and acromial extremity, the deformity and disability, both are too slight to warrant operation. At the usual site of fracture, about or near the middle, the lesion usually runs from above downward and inward, allowing the inner fragment to move upward and forward. When the line of fracture tends to be more transverse an intra-medullary splint or pin of bone answers well for fixation; when it tends to be more oblique wiring is perfectly efficient on account of the accessibility of the bone easily carried out.

It might be mentioned here that the wire preferred by the writer for bone fixation is annealed silver wire 2 mm. 1-12 inch thick. When intramedullary splints are used they may be made of bone, somewhat spindle shaped, with longitudinal grooves or flutings for the passage of granulations They are made spindle shaped so as to be readily introduced and for the same reason they must be short. A small hole should be drilled transversely through the middle. In this a wire is placed to prevent the splint from slipping too deep into the medullary cavity. In placing the bone splint in position it is first inserted in one fragment to its middle where it is stopped by the transverse wire. Both fragments are then raised until the free end of the bone pin can be brought opposite the medullary cavity of the opposite fragment. On lowering the fragments the pin then slides into place. The wire is then withdrawn. For a bone the size of the clavicle a bone splint three-fourths inch is long enough.

For those cases treated conservatively I would suggest, as being especially suitable to orthopedic surgeons, a trial of a method published by myself in the *Annals of Surgery* many years ago. It consists in applying a Desault bandage of flannel covering the chest and binding the arm to the side. A small hard roll of bandage is placed just above the outer end of the inner fragment and fastened with adhesive plaster. Over all is laid a plaster of Paris bandage while the patient is in a reclining position. He is then made to lie down absolutely flat on his back, the shoulders are to be pressed

back, and the plaster moulded closely around the clavicle until it sets.

This plaster cast not only supports the weight of the arm but tends to keep the shoulders back. The patient is allowed to walk around.

In fractures of the upper end of the humerus skiagraphs are almost essential for purposes of both diagnosis and treatment. Even dislocation of the humeral head may pass unrecognized without them. I am convinced that many cases diagnosed as fractures of the anatomical neck are in reality fractures of the surgical neck. It is strange that many people do not know that the surgical neck lies between the tuberosities above and the tendons of the Pectoralis major and Latissimus Dorsi and Teres major below. In fractures high up the resultant disability is most marked in a diminution of the power of abduction, hence the advisability of treating many of these cases with the arm in the abducted position.

Peckham has shown that it is not necessary to subject these cases to operation in order to secure good opposition and satisfactory function. Impaction in a more or less faulty position is not infrequent, hence reduction under an anesthetic should if necessary be resorted to. Resort to an anesthetic has the advantage of being evidence that every aid possible was given to the patient to secure a good result in case of dissatisfaction arising later. In fractures of the shaft there is one which occurs between the insertion of the deltoid below and the insertion of the axillary fold muscles above with which the profession seems to know but little. In it the upper fragment is adducted by the axillary fold muscles while the lower fragment is drawn out by the deltoid.

In fractures of the shaft the musculo-spiral nerve is not infrequently injured with consequent paralysis.

The question arises as to whether the injury to the nerve is a primary one or is it due to its inclusion by callus. That the latter is sometimes the case is probably true, but I believe the injury is usually done to the nerve at the time of the accident by the fragments or else the nerve becomes stretched over the sharp edge of a fragment and subsequently inflames, degenerates and atrophies. I have seen this result in several cases of fractures of the shaft of the humerus, of the bone in the region of the elbow and in the clavicle. In fractures of the clavicle I believe injury of the nerves (brachial plexus) only takes place from direct violence, as by crushing. In operating for restoration of nerve function in these nerve paralysis cases total resection and end to end union will in many cases be necessary and the prognosis as regards a return of function should be guarded, at least as regards to time.

The use of extension in fractures of the shaft of the humerus may be of service at times.

Operation in some cases of extreme displacement may rarely be required. If the fracture is sufficiently transverse the intra-medullary bone splint leaves nothing to be desired. For oblique fractures a screw or wiring, or even a plate, may be used.

In fractures of the elbow I am a firm believer in placing the arm in the fully flexed position. It is successful in nearly all of these injuries and it is usually easy to get a good *x*-ray to ascertain the position of the fragments.

It takes many weeks, however, before full extension is regained.

One should not think, however, that this position is absolutely the best for all fractures of the elbow because a skiagraph will show that such is not the case. Primary resections of the elbow should almost never be resorted to.

Conservative treatment, either non-operative or fixation of fragments by operation, should first be resorted to and will be successful in many cases. Should a stiff elbow ultimately result arthroplasty can still be resorted to as this operation on the elbow has been proven to be a most satisfactory procedure.

In fractures of the forearm I am convinced that injury to the nerves and blood vessels is more common than is usually thought to be the case. I have seen total gangrene of the forearm ensue in a case of simple fracture of both bones without any wound whatever.

Volkmanns ischemic paralysis ensues with hardly any apparent reason. In a recent case in which operation was done although there had been no wound or slough both the median and ulnar nerves were found enveloped in fibrous cicatricial tissue. In these cases I believe in freeing the nerves and lengthening the flexor tendons. I have not been very successful with the gradual stretching method of Jones as the only method of treatment.

In these fractures the line is so often transverse that it is a matter of surprise that the use of steel plates should be so often used instead of the intramedullary bone splint.

As has been pointed out by A. P. C. Ashhurst the best position to treat practically all the fractures of both bones of the forearm is in a position of complete supination.

In Colle's fracture of the radius perfect reduction is recognized as being essential. There is a marked difference, however, in different cases; some remain reduced and in others the deformity reappears. For this reason I believe it desirable to keep the site of fracture accessible to observation during the entire course of treatment. I have seen a recurrence of the deformity even so late as six weeks. This was, however, due to use of the arm. The most satisfactory method to me of dressing this fracture is with a single straight posterior splint as advocated by Roser, of Marburg. The hand is allowed to hang flexed and as the splint projects as far as the knuckles padding is used to fill the space between the under surface of the splint and the dorsum of the hand.

In fractures of the lower extremity intra-capsular fracture of the neck of the femur is one of the worst. It seems to occur at all ages and in adults, whether young or old, remains frequently ununited.

When the fracture extends through the base of the neck and especially if it passes through the greater trochanter a firm healing is almost always secured. When, however, the line of fracture is closer to the head the outcome is usually worse. If this true intracapsular fracture is treated as is so commonly done with adhesive plaster and weight extension and sand bags non-union I believe is almost certain to occur and I think its employment should no longer be taught for this type of fracture. A far better plan is to use longitudinal and lateral weight traction as advocated years ago by Root, of Iowa, and first suggested by Maxwell, or keep the limb widely abducted as advised in children by Whitman. I have had excellent results by both methods but prefer the combined lateral and longitudinal traction for adults and the wide abduction for children.

In fracture of the upper third of the shaft of the femur the displacement is often so persistent and extensive that operation and fixation by plating or other means is sometimes advisable. If one is skillful, however, with apparatus and splints these cases can be treated by extension in a flexed position and good results obtained.

I believe the dangers of operation are often minimized. I operated once in a case in which the wound was all healed, but before the bone was sufficiently solid the patient died of bed sores. This case taught me not to do serious operations on patients whose subsequent treatment had to be left in the hands of others. In fractures of the middle of the shaft, approximately, the questioning of shortening is interesting. It seems to me that one reason why shortening is so common is because the traction employed is inefficient. I am inclined to think that perhaps Dr. Allen, of Indianapolis, is right when he states that by means of adhesive plasters and screw extension he can cure these cases without appreciable shortening.

The experience of Codivilla of Bologna, who made extension with a screw fastened to a large nail passed transversely through the calcaneum, goes far to support this view, for he not only prevents shortening, but actually increases the length of a limb by this means in cases in which an oblique osteotomy has been performed. The failure of surgeons to prevent the external rotation deformity is due to the almost universal neglect to see that the foot is held in a vertical position. I do not recall any unusual experiences with fractures of the lower third of the femur.

In fractures of the patella conservative treatment by splints in simple cases is efficient, but troublesome. Usually I have done the common wiring operation.

I decided to try Malgaignes plan of drawing the fragments together with hooks. I had an especially effective set made, and found that excellent results could be obtained, but that sometimes a drop of pus or two would collect around the punctures through the skin, and as I was afraid it would infect the joint I ceased using them. The use of metal plates, I think, is far inferior to wire.

Fractures of the leg, either of the tibia or both bones, are sometimes very troublesome, and have furnished some of the worst cases of deformities I have seen. Usually in these cases an earnest effort has been made to secure a good result, but the correct treatment has not been applied.

In these cases, and I have seen them all the way from just below the knee to just above the ankle, the difficulty has resulted from the obliquity of the fracture. If operation is advisable on any case it is on these, because even after the lapse of many weeks of careful treatment and after union is thought to be firm, when the patient gets about the callus gives way and the fragments begin to slide, and if the obliquity has been lateral then bowing sets in and increases in spite of everything; if the obliquity of the line of fracture is antero-posterior then the lower fragment slides up and back and the lower end of the upper fragment makes a large, nasty protrusion anteriorly above the ankle. There is shortening and a certain amount of malposition of the foot. In these oblique fractures of the tibia, whether accompanied by fracture of the fibula or

not, fixation by operative means is good practice. If one desires to treat the case conservatively a considerable amount of the tendency to posterior displacement of the lower fragment can be overcome by tenotomy of the tendo-achillis and adhesive plaster extension applied to the foot. Lateral splints, of course, are to be used to prevent bowing. The utmost care, however, must be taken to prevent any weight bearing on the leg for a long time, and then only when the bones are thoroughly supported by firm plaster, leather or other splints or side-irons, and a firmly laced leather socket. When both bones are broken the fibula seems to unite more firmly than the tibia. Then the tibia gives way and lateral bowing results. A friend of mine now has a suit for malpractice pending in which the lateral bowing occurred after an oblique fracture below the knee.

In Pott's fracture of the fibula there is a tendency of the foot to be drawn posteriorly and toward the outer side. When this is the case a tenotomy of the tendo-achillis will enable one to set the lower fragment and foot at once in a good position and remove all trouble. Why is it that this simple and efficient means is so little used?

A few words on ununited fractures. In some cases union is only delayed and persistent fixation will cure them. In other cases the irritation of use will cause consolidation. In hip fractures fix them up in plaster and abduction and encourage the patient to get around, bearing the weight on the limb. It may shorten but will become firmer.

In fractures of the leg that were not too oblique the old Henry H. Smith splint, consisting of a leather socket and side irons, is very efficient, the patient walking on the broken limb.

As to operative means, I am convinced that the best solution of the question is bone transplanting. In a recent case of non-union of the tibia in a child I took a graft a couple of inches long from the tibia above the site of fraction and used it to bridge the gap lower down. In these cases it has been my practise for years of roughening and drilling the smooth hard ends so as to allow the granulations to pass across and bridge the gap.

Murphy's recent work on the bones is bound to give a new impetus to reparative work in this direction, and perhaps his remark to me that in the next ten years bone surgery will progress the same as abdominal surgery as in the past ten will come true.

1814 Spruce Street.

THE MODERN SURGICAL TREATMENT OF ADVANCED TRACHOMA.

James Halliday Williams, M.D.,
Cincinnati, Ohio.

In the surgical treatment of advanced trachoma to-day the most gratifying results are obtained through the operation which nearest approaches the removal in toto of the trachomatous tissue. The advent of tissue resection for the eradication of trachoma was introduced by Richet, a French surgeon, in 1874.

The excellent results obtained by Richet induced the employment of tissue removal in these cases throughout Europe, particularly in Prussia, where trachoma in its worst form is most abundant.

The modern operation, more extensive than its predecessors, consists of removal of the tarsal cartilage and the retro-tarsal fold, which was first performed by Heisrath, a pupil of Kuhnt, in 1882, and to which nothing has been added during a period of 30 years.

During the infancy of the Heisrath procedure it was so vigorously condemned and opposed for certain reasons by the better German surgeons of the day that it fell into disrepute in France, Germany and England, and so remained for a period of twenty years.

Within the past ten years it has been revived and during this time has been practised in all the above countries and recently in America. It is now performed extensively in the trachomatous Prussia, and one of its ablest exponents to-day is he who so bitterly denounced it in former years, when it was the fledgling of his protégé—I refer to Kuhnt, who states that he willingly embraces this as a cure for trachoma, as all other methods have signally failed.

It has been said that resort to this procedure is construed as nothing more than a surrender. I suggest that in the following cases it is proof conclusive of the adage that "A good run is better than a bad stand." Fuchs strenuously objects to excision, saying it causes great and permanent contraction of the conjunctiva. In 1905, after a practical experience of eight years, Bolt confidently asserts that the combined excision in advanced trachoma is without parallel in its achievements, which he further states is the opinion of all surgeons who reply upon their own experience. Trachoma, of course, never has, and probably never will present the problem in this country that it has abroad; most of our cases are seen in children where expression usually answers. This is supposedly the reason for the popularity of expres-

sion continued far past the time when a more radical procedure is indicated.

The question as to the indications for this operation and as to just which cases are suitable, often arises. It is advised in those cases in which medicinal and mechanical treatments have been persistently applied and have failed to effect a cure, i.e., to stop the increasing conjunctival hypertrophy; also in those cases in adult life in which the tarsal cartilage and overlying conjunctiva are thickened and infiltrated and the retro-tarsal fold is boggy, velvety and studded with granulations and marked hypertrophy exists. As we know, this class of cases persisting after expression, silver, blue stone, alum, re-expression, and scarification promises to make the patient's life one long line of remissions and exacerbations of trachoma and bids fair to an ending in old age with partial or practically complete blindness. This class of cases sooner or later come to operation of some sort, canthoplasty, canthotomy, canthilysis, Vossius', Jaesche, Alt or some entropion or ptosis operation which at a late date is often performed for the relief of pain, and is a feeble effort of atonement for failure to excise the trachomatous tissue for the conservation of vision.

We know that when hypertrophy continues to increase in a trachomatous eye under treatment we are every day losing ground in this case except where we expect a cure through the formation of cicatricial tissue before the cornea has become entirely opaque. But ofttimes between bands of scar tissue numerous islands of trachomatous tissue exist, and the advent of complete cicatrization seems always far removed. Such cases as these, with well established or even beginning pannus, should have the benefit of excision.

My one reason for describing minutely the technic of this operation is because no detailed description of the procedure is to be found in any English or American text-book on ophthalmology.

The combined excision is performed as follows (from Kuhnt): The upper lid is doubly everted and held in position by two fixation forceps. In this manner the bulbar conjunctiva is dragged upward from the surface of the tarsus. The latter furnishes a firm background for the first incision which is made transversely at the juncture of the ocular and palpebral conjunctiva. Muller's muscle, which lies directly beneath and can be distinctly recognized, must not be injured. The bulbar conjunctiva immediately retracts and should be dissected free from the sub-conjunctival tissue with the closed points of scissors for a distance of four or five millimeters. Three sutures, armed with a needle at each end, are now inserted through the lower lip of the wound. The lid is then permitted to assume the position of single eversion and is held in position on the horn plate by the assistant. An incision is now made the entire length of the lid at a distance of 2½ mm. from the lid margin and exactly parallel and through the cartilage down to the aponeurosis, but not penetrating it.

The incisions do not always meet, but can be joined best by the use of scissors. The cartilage with its mucous membrane is now separated down to the aponeurosis, the levator palpebrae severed with scissors and the entire tissue between the two incisions is removed.

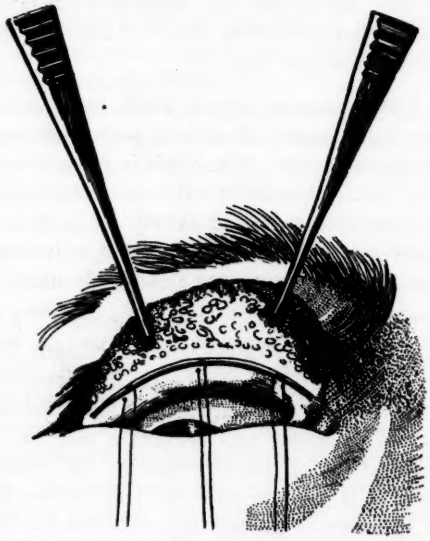

FIG. 1.—Showing Line of Primary Incision with Sutures in Situ.

If any follicles remain at the lid margin they are best expressed with the Knapp roller forceps, one blade on either side of the lid.

In closing the wound the ocular conjunctiva is drawn up securely against the remaining 2½ mm. rim of cartilage by the Von Blackowitz, through and through method of suturing, one end of a double armed suture passing through the rim of cartilage and skin, the other fixing the aponeurosis, both being tied over a wick of gauze on the external surface of the upper lid."

This makes the sutures easier to remove and prevents the knots from irritating the cornea. It is very necessary that the conjunctival margins are attached at corresponding points in order to prevent any distortion of the lid. This can best be accomplished after all hemorrhage has been stopped and by tying the middle suture first. Any granu-

lation tissue which may spring up at the time of union may be cauterized.

I believe that in all cases a bandage should be applied, but discontinued on the third day, and the sutures should be removed not later than the fifth day.

Excision of the lower lid is a much more aggravating procedure as the tarsal plate does not lend the same stability to the tissue, and cannot be so easily everted. The incisions, however, are made precisely as in the upper lid at the junction of the ocular and palpebral conjunctiva and 2½ mm. from the lid margin the entire length of the lid.

This eliptical piece of mucous membrane is removed with curved scissors and the operation is now completed, as no sutures are applied in the lower lid.

FIG. 2.—Dotted Line Shows Path of Second Vision.

Hemorrhage from the upper lid is ofttimes a very disagreeable feature and I have found it necessary in two cases to open up the incision to ligate the bleeding vessel. Pressure sufficient to control such hemorrhage cannot be safely made upon the eyeball.

Any ptosis existing is markedly improved, if not entirely cured, by this procedure. Pannus clears up rapidly and ocular movements are not restricted by the resultant cicatricial contraction.

My own limited experience embraces six cases, all of which are doing well. Since all efforts in the treatment of this disease are directed toward preservation of the cornea, I believe that, in the vast majority of instances, only the radical treatment of trachoma by excision, means conservation of the vision.

25 GROTON BUILDING.

SURGICAL TREATMENT OF "EXOPHTHALMIC GOITER."

J. THOMPSON SCHELL, M.D.,
Surgeon to Northwestern General Hospital,
PHILADELPHIA, PA.

The surgical treatment of exophthalmic goiter is based on the theory that this disease is caused by an over-activity of the thyroid gland—"hyperthyroidism or thyrotoxicosis"—but this theory is not fully accepted.

In order to justify any surgical procedure, the etiology of the disease must first be investigated and satisfactorily settled. According to some authorities, the disease is due to some trouble in the central nervous system and particularly in the bulb "Ballett." According to Sea, it is a neurosis of bulbar origin. On the other hand, Wilson, in a report from the Mayo's Clinic, strives to prove that there is a definite relationship existing between the group of symptoms known as exophthalmic goiter and certain changes in the thyroid gland —the result of pathological changes. Kocher says that thyrotoxicosis is the cause and the result of a nervous disease and claims that the uniformly good result following the operation of partial thyroidectomy is a proof of the soundness of his argument.

That the thyroid gland has, undoubtedly, a special influence (probably of a chemical nature) on the nervous system and particularly on the vascular sympathetic system, and while we possess as yet, but little accurate knowledge in regard to the subsequent chemical processes that take place in the material elaborated by the cells of the thyroid gland, we do know the effects of the loss of the thyroid function in the production of myxedema. The function of the parathyroid glands is not well known, but we know that removal of all four of the parathyroids will cause fatal tetany.

The concensus of opinion in the surgical profession at this time, seems to be strongly in accord with Kocher, who says that, "After many years of study and experience, it is my opinion that exophthalmic goiter is caused by some disturbance of the thyroid gland, causing it to over-secrete." Trousseau has claimed that the chief symptoms and vascular troubles in this disease do not extend beyond the area of the cervical sympathetic, accordingly the disturbance of the great sympathetic nerve has been considered as the cause—and Jaboulay attempted a cure by a double section of these nerves and reports some wonderful results by this method. He was followed by Jonnesco, who reports a large series of good results also, but Dieulafoy, in his

recent publications, says that "the results obtained by bilateral resection of the cervical sympathetics are so far too at variance to yield definite information as to the value of this intervention," and strongly advises against any surgical method. Mayo, in 1908, said: "In hyperthyroidism we have a certain definite condition which shows in the gland and so regularly that an experienced pathologist, from the examination of the gland alone, can give the symptoms and general condition of the patient from whom the gland was removed, in 80 per cent. of the cases.

From this brief outline of the etiology of exophthalmic goiter, it is readily seen that a wide devergance of opinion exists, not only as to the etiology, but also as to the treatment of this disease. It is my opinion that enough clinical experience has been accumulated to strongly suggest that the group of symptoms called exophthalmic goiter should rather be designated as hyperthyroidism or thyrotoxicosis—as there are many cases of this disease which, in my opinion, go unrecognized in the early stage, before exophthalmos shows itself or even before the thyroid gland itself shows any marked increase of size.

I wish in this paper to also call attention to the fact that there seems to be some definite connection between diseases of the genital organs and the production of hyperthyroidism. It has long been a well recognized fact that pregnancy has a decided influence on the thyroid gland, probably toxic, but possibly through a secretion from the ovary or a lack of it. Of late, I have noticed a number of cases associated with or following operations on the female genital organs which struck me at least as a rather strong coincidence, and, therefore, I shall report three such cases later.

The successful cure of hyperthyroidism or thyrotoxicosis, is essentially surgical, and that these results can be secured, is proven by the reports of cases that have been operated upon as long as fourteen years ago without recurrence. I personally can report a cure of a case operated on nine years ago. The most successful results will be secured in the cases that are operated early. As our surgical knowledge and experience in this disease increases, I believe that it will finally become catalogued as a strictly surgical disease.

Already we know that the most active condition of hyperthyroidism is not necessarily associated with the presence of a large tumor or goiter, and I have seen apparently a small goiter (by palpation) which, when subjected to operative interference—was found to be much larger than one would at first imagine. The over-secretion in some of these small thyroids must be enormous.

The mistake that is being made at present is that we wait too long for the appearance of all of the classical symptoms, when diagnosing this disease, and, therefore, permit the patient to go on to various terminal degenerations. The former high mortality following this operation was due to the advanced condition of the disease when referred to the surgeon, but even this handicap has been overcome to some extent by careful preparatory treatment and preliminary ligations of the thyroid arteries.

Mayo reports four deaths in his first sixteen operations; three in the next thirty; one in the following seventy-two, and four in the last one hundred and thirty-four. What does this mean?

First—More skill in performing the operation.

Second—More skill in preparatory treatment.

Third—(Still more important) earlier operations.

What then should be our line of action in handling these cases? An early diagnosis and prompt and thorough medical treatment, which should extend over a period of several months in bed. The patient should then be allowed to get up and go about, and if there is a return of the tachycardia and nervous symptoms, an operation should be performed at once, or at least after a careful preparation.

The operation of choice is a partial thyroidectomy by the intercapsular method, after first ligating the superior and inferior thyroid arteries. If the patient's condition will not permit this operation, then the arteries should be ligated and later the thyroidectomy performed.

This is not the proper place to discuss the technic of thyroidectomy, but a word as to the essentials:

1. Ether—the anesthetic of choice.
2. Anesthesia at a distance from operator by use of a special apparatus.
3. Operation to be as bloodless as possible.
4. The gland to be handled as gently as possible.
5. The preservation of the posterior cap.
6. Care to avoid the recurrent laryngeal, and to leave all the parathyroids.
7. A drain to be used for two or three days.
8. Use of atropin and morphine after operation for twenty-four hours.

I have had but little experience with the semi-surgical method of injecting various chemical substances—such as iodine, iodoform, or hot water, etc., in the gland, but I feel that it is dangerous

and unsurgical, and only to be resorted to under unusual circumstances.

CASE 1.—Miss M. T., age 30 years, gastric symptoms, apparently due to gastric ulcer, and so diagnosed by several competent medical men; chronic pelvic disease with dysmenorrhea and marked neurasthenia symptoms.

I operated on this patient in May, 1908, at St. Joseph's Hospital, and removed a chronically inflamed appendix, adherent and almost surrounding the first portion of the ileum—causing a partial obstruction. Both ovaries cystic and partial resection was done—no gastric ulcer found. She made a good operative recovery, but did not recover her health, but instead slowly became more markedly neurotic—with a slight exophthalmos—slight enlargement of the thyroid gland—a pulse-rate varying between 100 and 120—slight tremor of hand and marked sweats—vasomotor disturbances. In June of 1910 I performed a partial thyroidectomy and the patient is at present in excellent health.

CASE 2.—Miss E. H., age 23 years, nurse.

This patient was operated upon by another surgeon for what was diagnosed as appendicitis. Later when I examined her she showed symptoms referable to her pelvic organs, also night sweats and some enlargement of the thyroid gland. The pelvic organs were partially removed with only slight improvement. The nervous symptoms became more pronounced, with enlargement of the thyroid and exophthalmos, tremor, etc. A partial thyroidectomy was then done, and while she is not entirely cured of her symptoms, she has improved sufficiently to permit her to go on with her professional duties.

Note—I believe this patient's symptoms were all due to her undeveloped thyroid disease and were unrecognized at first on account of the fact that the exophthalmos and goiter were so slightly marked.

CASE 3.—Mrs. H. G., age 28 years; a hyperneurotic woman, with marked pelvic disease.

Referred by Dr. Griggs. She had a small fibroid with advanced ovarian disease. The thyroid gland was noticed to be slightly enlarged at the time of operation, but no exophthalmos was present. She made a rapid recovery from her pelvic operation, but her nervous symptoms have gradually become more prominent and at the present time she is in the hospital recovering from a partial thyroidectomy.

Note—This patient showed all the symptoms of a beginning thyroidism. Dr. Griggs again referred this cast to me—especially on account of difficulty in swallowing, rapid pulse, night sweats, etc.

SOME OBSERVATIONS ON STERILITY.

SAMUEL W. BANDLER, M.D.,
Adjunct Professor of Gynecology in the New York Post-Graduate Medical School and Hospital.
NEW YORK CITY.

One reads very little in the medical literature of to-day concerning the medical treatment of sterility. Reports of new procedures, or modifications of old procedures, with a statistical report of the percentage of cases cured, appear with more or less regularity. Curettage, thorough or slight, plus some operative procedure for temporarily or permanently dilating, widening or straightening the cervical canal, constitute the main steps in the mechanical or surgical correction of sterility.

It is obvious that much prominence is given to the cervix as a cause for sterility. The possibility of a uterine obstacle is recognized by the evident disposition to scrape out the old lining and so make room for a new one. What is most surprising is the fact that even when these operations are performed on properly selected cases, cases where active spermatozoa are known to be present in the husband, cases in which a recognized peri-uterine inflammation is absent, still in only 25 to 30 per cent. is there relief of the sterility.

What is the trouble then with the other 70 per cent.? Why do they fail, by a lack of a favorable result, to prove that the cervix or uterine lining are the involved points? What is the trouble with these 70 per cent.? Where is the real obstacle and what is its nature? Take, too, the very large number of cases of one-child sterility, cases where the patient was pregnant once, miscarries in the early or possibly later months of pregnancy, or goes to full term and is delivered of a living or dead child; the puerperium, according to the history, shows nothing out of the ordinary, and yet in spite of time, treatment and even operative procedure, no second pregnancy results.

Is the cervix or is the endometrium responsible here? Surely a cervix which permitted the spermatozoa to pass upward in the first instance ought to do so after having been stretched and torn by the labor or in the process of abortion, and if an abnormal endometrium or a tenacious cervical discharge are newly acquired abnormalities which prevent a secondary pregnancy, surely these may be corrected to the end that pregnancy may result, provided that the endometrium or the cervix or both are really at fault; yet I know no more stubborn type of cases than those of the so-called one-child sterility. The proportion of such cases that

come under treatment or that submit to minor operations for the correction of the sterility is decidedly smaller than the number of cases coming for the cure of primary sterility, yet I can recall very few of such instances of one-child sterility of fairly long duration that have yielded to treatment of any sort. Why is this? What is the character of the acquired obstacle, and where is its location? When we survey the steps which unfold themselves to the inquiring mind, when we investigate the process of fecundation and imbedding of the ovum, we cannot fail to admire and wonder at the seemingly incredible activity of the spermatozoon which passes, when deposited in the vagina, up through the cervix and uterine canal and out through the tube to meet the ovum thrown out from either of the ovaries. Wonderful as this is, marvelous as is the instinct or the energy developed by resistance, which prompts and guides the spermatozoon out into the peritoneal cavity, still more wonderful is the manner in which the ovum finds its way through the tube into the uterus. The ovum is carried along through no propulsive power of its own, but is sucked up or drawn up into the tube from some point in the peritoneal plasma by the current created by the cilia situated in the abdominal end of the tube. The ovum is then carried by the same propulsive motion through the extremely narrow intra-uterine area of the tube into the uterine lining where it imbeds itself by chemical action in some favorable area of the endometrium.

It does not take much of an obstruction to prevent this movement of the embryonic ovum, and the wonder is that in so large a proportion of cases this process is carried out without a hitch. If at various points in the course which the spermatozoon travels from the vagina up to the peritoneal cavity, and in the course which the ovum travels from the peritoneal cavity into the uterus, mechanical obstacles may be present, we can see that practically only such obstacles as are situated in the cervical canal or in the uterus are within the reach of treatment.

The endometrium, to be sure, may be replaced by a fresh one, yet the obstacles to the passage of the spermatozoa from below up or to the passage of the egg from without inward, are rarely in the endometrium of the normally proportioned uterus. Obstacles as such may exist at the internal os or in the horns of the uterus in the area of the internal ostia of the tubes.

The character of the uterine lining may make imbedding of the ovum difficult, or may make the life of the imbedded ovum a short one, but from the standpoint of obstacles, the endometrium probably plays little part in the causation of sterility. Therefore, our attention from the standpoint of obstruction must be centered of necessity upon the cervix up to and including the internal os and upon the tubes from the peritoneal openings to and through the internal ostia. To repeat, only the former of these two areas is open to active mechanical or surgical treatment.

If we attribute to the cervix, because of stenosis or because of the existence of an angle at the internal os, or because of the length of the canal, or because of the character of its secretion, or because of the overgrowth of its lining, a great share in the causation of sterility, when this area simply serves as a path through which an actively moving spermatozoon passes, why should we not attribute to like conditions in the tube a still greater share in the causation of sterility, since we are dealing with a canal much longer than the cervix, much narrower than the cervix, one in which only a slight swelling of the lining serves to obstruct the lumen of the canal, a canal through which the ovum moves only because the cilia are active, a canal into which the ovum enters only when the cilia in the outer end are sufficiently active to create a current which sucks the ovum up into the lumen?

Any anomaly of a congenital nature which may be present in the cervix, any obstruction of a mechanical form which may be present there, any obstacle which may be due to an acquired inflammation in the cervix, may with greater readiness be appreciated as existing in the two Fallopian tubes. If this be so, and it is so, we can readily appreciate why only one-third of the favorable cases of primary sterility respond to treatment directed to the cervix and the cervix only, with some attention to the uterine lining. We may likewise appreciate why so few of the cases of one-child sterility respond to treatment of the same form, or of any form for that matter.

A few words as to the character of the treatment for sterility. Viewing the whole question from the statistical standpoint, we might come to this conclusion, viz., that of the various causes of sterility due to the female, one-third are due to troubles situated within the cervix or, possibly, the uterus, the other two-thirds are located at some portion of the tubes, provided we are dealing with cases where spermatozoa are present in the male and healthy ova in the female. If this be so then one-third of the cases of primary sterility may be cured by that form of treatment of the cervical condition which overcomes the stenosis, widens the

canal, removes obstructions and cleanses it of abnormal secretions. If, now, a certain proportion of properly selected cases be treated by medical procedures or at least by procedures not of a surgical type with the design of accomplishing the same purpose, it will be found that as large a proportion will respond favorably to the treatment by becoming pregnant.

It is not the purpose of these remarks to prove that non-surgical or non-operative treatment gives a larger proportion of good results. In the first place, the purpose is simply to detect and locate the obstacle in that large proportion of cases which do not yield to treatment. In the second place, to show that of the two procedures the so-called surgical in a very large number of instances has a greater potentiality for harm to the patient than has the method known as medical.

In this connection one must turn his attention for a few moments to the question of ectopic gestation and its etiology. For the production of an ectopic gestation it is necessary that some obstacle, either on the part of the ovum or in the path through which it travels, prevents its complete passage through the entire tube, and results in its location at some intermediate area where its subsequent development realizes the condition known as ectopic gestation.

By some it is claimed that the ovum, through external irritation or some other delay after impregnation, becomes too large to pass readily through the tube.

Whatever may be said of this view, the fact remains that it is claimed that the ovum becomes so large that it cannot adjust itself to the lumen of the tube. This explanation which might possibly hold good in a certain number of cases does not ring true nor does it seem probable. It does seem reasonable, however, that because of some congenital or acquired abnormality within the tubal lumen, especially at its more narrow confines, an obstacle to the further passage of the ovum is presented, and that this obstacle, whether it be a congenital stricture or a twisting of the tube, or a narrowing of the canal due to edema or inflammation, or to union of the tips of the tubal mucosa, or to interference with the activity of the ciliated epithelium, is sufficient to produce what is known as ectopic or tubal gestation. In a large proportion of cases of tubal gestation the other tube is found to be affected or involved by inflammatory changes, and so frequent is this finding that it seems as if we must accept inflammatory change as the most frequent cause of obstacles to the untrammeled progress of the ovum. Therefore, when a pregnancy does occur in a tube, it occurs there before the outer end has become involved, at a period when the inner end only is inflamed and the lumen narrowed; or else pregnancy occurs at a later period in a tube whose outer and inner areas were involved, but the outer end having healed and become normal, takes up the ovum while the inner area still retaining a narrowed lumen furnishes the obstacle to further passage.

In this way we may understand the occurrence of an ectopic gestation very shortly after marriage, or its late occurrence many years after marriage, or after a previous pregnancy. I have always viewed this explanation of ectopic gestation as furnishing the keynote in the way of understanding those cases of primary and secondary sterility which, in spite of the existence of active spermatozoa, and in spite of every medical or surgical treatment of the cervical or uterine causes of sterility, have still remained. In such cases the tubes are closed at the outer end or else not enough of the outer end is normal to draw the ovum in even to the degree necessary to the production of ectopic gestation. If one of the tubes heals completely then a uterine pregnancy takes place.

Every case carried in mind by the physicians or recorded in the literature where a patient, sterile for years after the removal of the diagnosed cervical and uterine causes of sterility, subsequently becomes pregnant either in the tube or in the uterus, is a proof of the existence of tubal involvement as a cause of the preceding sterility.

134 W. EIGHTY-SEVENTH STREET.

X-RAY DIAGNOSIS OF STONE IN THE RIGHT KIDNEY.

Occasionally in the right kidney area gall stones have been mistaken for kidney stones, but this error is inexcusable to-day, for it is a simple method where doubt exists to make stereoscopic plates and establish a positive diagnosis. A more simple method consists in making an extra plate with the patient lying on the abdomen, the reverse of the first position. This second plate will show a shadow of increased dimension if it be a kidney stone and a smaller shadow if it be a gall stone. It is essential to have the patient well prepared, the intestinal tract being thoroughly emptied and the patient put on liquid diet. Before making the exposures the skin should be thoroughly inspected, for deeply pigmented skin growths have been mistaken for stone. —A. C. HEUBLEIN, in *Yale Medical Journal*, April, 1912.

THE VACCINE TREATMENT OF GONORRHEAL COMPLICATIONS.

CHARLES EDWARD PANOFF, M.D.,
BROOKLYN, N. Y.

I shall consider this subject under four headings:

1. The theory of vaccine treatment.
2. The vaccine to use.
3. How to use vaccines.
4. Results obtained in gonorrheal complications by the use of vaccines.

The Theory of Vaccine Treatment.—In discussing vaccines and their use it is always advisable to begin with a few definitions. First, because vaccine treatment is not entirely out of its infancy; second, because there seems to be a haze, even in the minds of our fellow practitioners, as to the *how, when* and *why* of the vaccine treatment, and third, because, like all new phases in medicine, it has come into the hands of a few, who, on account of abuse, misuse or disuse, have criticised its action.

A vaccine is a saline emulsion of dead bacteria.

An autogenous vaccine is one that is prepared from the organisms or organism isolated from the infected individual.

A stock vaccine is one that is prepared from the organisms of an infection and is used in a similar infection in another individual.

A mixed vaccine is one that contains two or more separate bacteria.

A polyvalent vaccine is one that contains separate strains of the same bacteria.

It has been found that by injecting dead bacteria into an animal suffering from an infection due to a similar organism, that the quantity, quality and activity of the opsonins in the blood are increased, and that this in turn raises the resisting power of the animal, and thus produces an artificial immunity. Upon the production of this artificial immunity rests the whole theory of the use of vaccines.

The measure of the exact number of bacteria ingested by the white corpuscles, as compared to a standard, represents the opsonic index. The opsonic index expresses the degree of immunity or power of the individual to resist or to overcome the invading bacteria.

Besides raising the opsonic index, it has been noticed that the number of leucocytes is increased six to eight hours after an injection of vaccine. The autogenous vaccines seem to produce this condition better than if a stock vaccine had been used.

The Vaccine to Use.—After trying both the stock and autogenous vaccines in the treatment of gonorrheal complications, I have come to the conclusion that the autogenous vaccine is the one to use and of the autogenous vaccines my best results have been obtained from a mixed vaccine. When we take into consideration the fact that in gonorrheal complications we are dealing with a mixed infection, and that our object is to overcome the effects of this mixed infection, then we can readily see that we can best accomplish this by the use of a mixed vaccine. While it is true that we will obtain an improvement, in the condition of our patient by the use of a straight gonococcus vaccine, by which we are obtaining immunity against the gonococcus alone, we must not lose sight of the fact that it is chiefly the other organisms present that are really causing the complication and that by using a mixed autogenous vaccine we are providing an immunity against them all.

How to Use Vaccines.—Having selected the vaccine, the question arises how to use it. We are not all bacteriologists or serologists, and, therefore, we cannot be guided by making continual opsonic indices. We can, however, make use of the findings of these men. They have come to the conclusion that the opsonic index is highest on the third day after the injection of the vaccine, that is to say, that on the third day the vaccine has reached its highest point of efficiency towards producing the artificial immunity that we are seeking. Such being the case, it has been the general rule to give another dose of the vaccine the following day, after this point has been reached, so as to again put into the blood that something in the vaccine which will again increase the opsonic index, and so help to obtain immunity, the condition that we are seeking to cure the infection.

Some of us make the mistake of allowing too long an interval to lapse between our injections, with the result that the effects obtained by the first injection are worn off before a second is given. We practically have to start all over again if we allow too long a time to intervene between our injections, and if we persist in injecting at long intervals, we must not be surprised if we do not obtain the artificial immunity that we are seeking, and that our results are not as satisfactory as expected, or do not compare with the good results obtained by one who is injecting at proper intervals.

Don't condemn the vaccine treatment! Correct your method of injecting the vaccine, and then you will see that the greater part of the failure has been your own.

How much of the vaccine to use at an injection is a question that can only be solved by experience. My method is to use 1 cc. of the mixed auto-

genous vaccine at the beginning of the treatment. On the fourth day following the injection the patient reports to me, and judging by the results obtained, I inject either 1 cc. or 2 cc. of the vaccine. If the clinical condition of my patient has improved, I inject 1 cc., if it is the same, as on the first day of the first injection, then I use 2 cc.

If the 2 cc. do not produce any change for the better in the condition of the patient then I inject 3 cc. four days later, and by then I generally get some reaction and notice some improvement in the condition.

It was recently suggested to me to use the vaccine in smaller doses, but oftener, say ½ cc. of the vaccine every day. The idea being to keep the opsonic index at a high point after we had obtained it, and not to wait a day after it had been reached, as in the four day interval, thereby gaining a day in every four, and at the same time have a continual high point in our opsonic index and thus, more readily obtain our artificial immunity.

The amount of dead bacteria in each cc. of the vaccine is regulated by the amount of the organisms found in the cultures of each case. This refers to the autogenous vaccines. The stock vaccines have a mixed amount to each cc. of the vaccine. In the autogenous the amount varies.

Some of the autogenous vaccines that I have used have had 50,000,000 gonococci and staphylococci albus aureus and citreus. Others 75 and 100,000,000 to the cc.

The place to inject the vaccine is of no material importance. Every user of vaccine has a site of his own. The idea is to get it into the blood, from what point makes no difference in the result.

The apparatus needed to make the injection is a sterilized needle and graduated glass syringe.

Sterilization of the skin sufficient for our purpose is produced by painting it with tincture of iodine.

Results Obtained in Gonorrheal Complications by the Use of Vaccine.—Under this heading I shall consider cases of epididymitis; prostatitis; vesiculitis; rheumatism.

In choosing these as the complications of gonorrhea, I do so, not because they are the only complications, but because they are the only ones that I most often come in contact with.

To better describe the results obtained by the use of vaccine in these conditions, I shall report a case history of each group.

Epididymitis.—On March 18, 1912, I was called to see M. H., 32 years of age; married, no children. He confessed to having five attacks of gonorrhea, for which he had been treated off and on by physicians and druggists. No discharge. First glass clear and full of shreds, second glass clearer and full of shreds. Right epididymis swollen and tender, accompanied by pain in the right iliac region.

Prostate tender and markedly enlarged, could not palpate vesicles.

Diagnosis.—Acute epididymitis, complicating anterior and posterior urethritis and prostatitis, and possibly vesiculitis.

Treatment.—Massaged prostate so as to get specimen to make vaccine.

Applied ichthyol ointment 25 per cent. to the scrotum and supported same with a modified handkerchief bandage. This gave sufficient support and helped to relieve the pain. Also a suppository of opium, belladonna and ichthyol.

Internally, formin five grains every four hours. Plenty of water.

On March 23 I obtained the vaccine, which contained 75,000,000 of the gonococci and staphylococcus albus and aureus. You will notice that it took five days before the vaccine was used. This is about the usual length of time necessary for the making of the vaccine, and it is the only objection that I can find against the autogenous vaccine. Where a case needs urgent vaccine treatment you will be compelled to use a stock vaccine until the autogenous is ready.

On this day the epididymis was about the same as when I saw it first. The urine also the same. Did not examine the prostate and vesicles.

Treatment.—Injected 1 cc. of the vaccine. Stopped the ichthyol dressings. Supported the parts the same way as before.

March 27, examination of the epididymis shows it to be smaller, softer and painless. Urine the same. Did not examine prostate or vesicles; injected 1 cc. of vaccine.

April 1, examination of the epididymis shows it to be greatly reduced in size, almost normal. Urine the same.

Examination of the prostate shows it to be softer and smaller. Massaged prostate. Examination of the expression, negative as far as gonococci are concerned.

Treatment.—Injected 1 cc. of vaccine and irrigated the urethra with solution of $AgNO_3$, 1-10,000, formin internally.

April 5, epididymis normal. Urine the same. Prostate in better condition. Massaged it. Examination of the expression negative. Stopped the vaccine treatment now confined to the other conditions.

Results Obtained in This Case.—1. A quicker reduction of the epididymitis by the use of the vaccine treatment, than could be obtained by suspension, heat and pressure, which were the three cardinal points in the former treatment of epididymitis.

2. Epididymis returning to normal, without leav-

ing any inflammatory products, with the possibility of a closed lumen to cause sterility of that testicle.

3. The vaccine also acted on the prostatic trouble, as shown by the miscroscopical findings of the prostatic expression. Two negative examinations. This under the old plan of massage alone would not have occurred so soon.

4. Prospects of a cure of the whole case in a shorter time, very favorable.

Chronic Prostatitis.—December 29, 1911. Saw W. R. W., aged 24, storekeeper, married two years. No children. Had one attack of gonorrhea three years ago, for which he was treated one month and discharged as cured. Wife being treated by Dr. P., who sent husband to me for examination and treatment if necessary. No morning drop, first glass clear, plus flakes; second clear. Prostate hard and enlarged. Examination of the prostatic expression showed pus cells and an abundance of intra and extra cellular gonococci.

Diagnosis.—Chronic prostatitis gonorrheal.

Treatment.—Massage and irrigations of $AgNo_3$.

January 3, 1912. Urine: First glass clear, plus small prostatis shreds. Second glass clear, plus small prostatic shreds.

Prostate same, massaged, examination of the expression, plus positive. January 5, urine the same, prostate same, examination of expression, plus positive. January 9, urine the same, prostate same, examination of expression, plus negative. January 11, urine the same, prostatic expression, plus positive. January 15, urine the same, prostatic expression plus positive. February 11, patient's condition same. Prostatic expression still plus positive.

Decided to use vaccine.

February 16, injected 1 cc. of the vaccine which contained 75,000,000 gonococci and 100,000,000 staphylococci.

February 20, injected 1 cc. of the vaccine.

February 26. Urine: First glass clear; second, clear; prostatic expression plus positive.

Injected 2 cc. of the vaccine.

February 30. Urine: First glass clear; second, clear. Injected 2 cc. of the vaccine. March 4, urine clear; second, clear. Injected 2 cc. of the vaccine.

March 11. Urine: First glass clear; second, clear; prostatic expression, minus negative.

March 15, urine clear, prostatic expression negative.

March 19, urine clear, prostatic expression negative. Injected 2 cc. vaccine.

On this day also stripped the vesicles so as to examine for spermatozoa, which were found in abundance and very active.

March 22, urine clear, prostatic expression negative.

March 26, urine clear, prostatic expression negative.

March 30, urine clear, prostatic expression negative. Discharged cured.

Results Obtained in this Case.—1. After the first injection of the vaccine the urine cleared up and remained clear.

2. Examination of the prostatic expressions became negative after the second injection and remained negative, whereas in the treatment by massage alone only one negative examination was obtained, and this was intermingled with several positives.

This case brings up the question of when is a patient cured of gonorrhea? Is he cured after obtaining a negative reaction to the classical beer test? Or after a negative microscopical examination of the urethral discharge caused by the nitrate of silver test? Or is he cured after obtaining six or ten negative microscopical examinations of the prostatic expressions?

In the past these were the only means at our command to determine if a case was cured. Now we are not satisfied with the results of these tests alone, for better than these there is the complement fixation test for gonorrhea. While the test is not perfect, still it is more reliable than the others. With the addition of this test, I do not consider a case of gonorrhea cured until the following tests have been made and passed.

1. A negative microscopical examination of the urethral discharge, following the instillation of $AgNo_3$.

2. Six negative microscopical examinations of the prostatic expression.

3. A negative complement fixation test.

If the patient passes these three, I feel assured that he is cured of his gonorrhea and that he is a fit candidate for marriage.

Vesiculitis.—February 9, 1912, M. K., aged 37, married ten years. Four children. First attack of gonorrhea 17 years ago, complicated with an epididymitis of the right testicle. Present attack of three months' standing. Was being treated by an advertising quack, with electricity. Patient urinates every 25 minutes during the day and from 10 to 12 times during the night. Also complains of pain in the rectum and at the head of the penis. Meatus congested and discharging pus.

Urine: First glass, murky; second glass, murky.

Prostate enlarged and very hard.

Vesicles could not be palpated on account of the enlargement of the prostate, which could not be passed by the finger.

Diagnosis: Acute posterior urethritis, complicated by acute prostatitis and possibly vesiculitis.

Treatment.—Hot sitz baths, suppositories of opium and belladonna and ichthyol. Internally, formin and plenty of water, also an alkaline mixture of potassium bicarbonate and extract of hyoscyamus.

From February 9 to April 4 the treatment was confined to the prostate and posterior urethra.

On this day the prostate was almost normal in size and very soft, but the vesicles, especially the left one, was found to be enlarged, boggy and tender. Took a specimen of the expression from the vesicles and the prostate for the making of vaccine, which I decided to use in the treatment of the vesicular trouble.

April 10, injected 2 cc. of the vaccine, which contained 75,000,000 gonococci and staphylococci to the cc. of the vaccine.

April 11, injected ½ cc. of the vaccine.

April 12, injected ½ cc. of vaccine.

April 13, injected ½ cc. of vaccine.

April 14, injected ½ cc. of vaccine. Prostate in very good condition. Vesicles smaller and not so boggy. Urine clearer.

April 15, injected ½ cc. of vaccine.

April 16, injected ½ cc. of vaccine.

April 17, injected ½ cc. of vaccine. Patient reports that he does not urinate as often as before the use of the vaccine and that he only gets up once during the night to urinate. Urine much clearer.

April 18, injected ½ cc. of vaccine.

April 19, injected ½ cc. of vaccine. Vesicles almost normal in size. Microscopical examination of the vesicular and prostatic expression negative.

April 20, injected ½ cc. of vaccine.

April 21, vesicles normal in size. Prostate normal. Examination of the expression from the vesicles and prostate negative.

Urine: Glass clear and some shreds. Stream of small calibre. Endoscopic examination of the urethra revealed a stricture of the posterior portion.

Treatment now confined to the urethra and the stricture.

This case was treated by small doses of the vaccine. The opsonic index was kept continually high and the results obtained were complete cure of the vesiculitis and prostatitis. There was no change in the quality of the urine but the frequency was diminished. The stricture was in part to blame for the lack of improvement in the urinary condition, but as soon as treatment was given to the stricture that changed for the better.

The finding of the negative microscopical examination of the vesicular and prostatic expressions in so short a time was most gratifying. I do not believe that this could have been done as soon by the old method of massaging.

Rheumatism.—February 11, 1912, S. S., waiter, aged 26, single. Had two attacks of gonorrhea, first one a year ago, which he treated himself, the second one, three months ago, treated by a physician.

Epididymitis of the left testicle, three months ago.

Urine: First glass clear, plus shreds. Second glass clear, plus shreds.

Prostate enlarged and hard. Vesicles enlarged and tender. Microscopical examination of the prostatic and vesicular expression shows an abundance of intra and extra cellular gonococci.

Patient's chief complaint is that he is suffering from an unbearable pain in the heels of both feet, pain most marked at the bottom of the heels.

Examination of the heels show them to be swollen and red; pressure eliciting pain.

A diagnosis of gonorrheal rheumatism was made complicating chronic gonorrheal urethritis, prostatitis and vesiculitis.

Treatment.—Injected 1 cc. of a stock vaccine. Irrigated the urethra with $AgNO_3$, 1-10,000, and internally, formin, 5 grains every four hours was given.

February 15, the patient reports that his condition was worse than before the injection of the vaccine was given. Injected 2 cc. of the stock vaccine and treated the other conditions.

Patient did not return until March 13, because he did not get immediate relief. In the meantime he had been to see other physicians, who also injected stock vaccines after making the same diagnosis. At this time the patient was in a worse condition than when I saw him first. Seeing that he was not benefited by the stock vaccines, I decided to use an autogenous vaccine. Massaged the testicles and prostate for specimen to make the vaccine. Irrigated with $AgNo_3$, 1-10,000, formin internally.

March 19, 1912. The vaccine was ready for use. Each cc. of the vaccine contained 75,000,000 gonococci and 100,000,000 staphylococci albus aureus and citreus. Injected 1 cc.

March 23, condition of the patient same. Injected 2 cc. of the vaccine. March 27, condition somewhat improved; injected 2cc. of the vaccine. Patient did not return until April 6. In the meantime he had been to a hospital. Did not get any vaccine treatment while there. Condition not changed. Injected 2 cc. of the vaccine and decided to use small doses of a ½ cc. daily.

April 7, injected ½ cc. of vaccine.

April 8, injected ½ cc.

April 9, patient thought that he felt better; injected ½ cc.

April 10, injected ½ cc.

April 11, injected ½ cc. Patient reports that he feels fine, and that he was able to attend to his business for the first time since the beginning of treatment.

April 13, patient reports that he feels worse than he ever felt. Injected 3 cc. of the vaccine.

April 15, patient reports that he had fever and headache on the day following the injection of the 3 cc. of vaccine. Skin shows a marked reaction. This is the first time that symptoms of a reaction made their appearance. Did not inject any vaccine.

April 17, patient feels better; injected 1 cc. of vaccine.

April 19, patient still reports progress. Did not inject any vaccine. Treated the other conditions.

April 21, patient complains that the pain is returning. Injected 3 cc. of the vaccine.

April 24, patient reports that he had fever headache, also skin reaction. Injected 3 cc. of the vaccine.

April 26, patient reports that he feels better than he has felt in the last three months. Now working

without any trouble or pains of any kind. All signs of inflammatory conditions in the heels gone. Patient still being treated for his other complications.

These were somewhat improved by the vaccine.

The remarkable part of this case is that he did not respond to the ordinary doses of vaccine 1 or 2 cc. That he got a slight result by the use of the small doses daily, which did not continue, but as soon as the large doses 3 cc. were given, he responded to treatment.

These large doses of vaccine will alarm some of the conservative users of vaccine, whose maximum dose is 1 cc. While it is true that 3 cc. is a large dose, still every case is a case unto itself, and the result obtained in this one will justify the use of such a dose.

In all, this patient received 18 cc. of the autogenous vaccine. This represents 1,350,000,000 of the gonococci and 1,800,000,000 of the staphylococci. By these figures you can readily see that the condition of this patient must have been very bad if it needed all this vaccine to produce the immunity necessary for a cure.

In conclusion, allow me to state that in vaccine we have a powerful adjunct in the treatment of gonorrheal complications. Use it with a definite purpose in view, and in doing so you will obtain results that will surprise you and gratify your patient. Use a dose large enough to produce the immunity so necessary to combat the condition that you are treating. If 1 cc. is sufficient don't use more, but again if it is not, use 2 cc. or 3 cc. and even larger doses if the case calls for it.

There is no fixed dose in vaccine therapy. Watch your patient, and judging by the results obtained, regulate your dose.

184 JORALEMON STREET.

SURGICAL ESSENTIALS.

FREDERICK EMIL NEEF, B.S., M.L., M.D.,
NEW YORK CITY.

CARE OF THE PATIENT AFTER OPERATION.

The attentive, kindly nurse can do much toward minimizing the discomfort of her charge. Many patients sweat profusely after operation and the wet shirt must be promptly exchanged for a dry one, the covers tucked snugly over the shoulders and chest, and, if the temperature of the room is low or the patient's condition poor, hot water bags applied at once to the side of the body and lower extremities. A chilling of the surface may mean suppression of the excretory skin activity, and additional work for the kidney which is already overtaxed. On the other hand, bronchial congestion following neglect may lead to pulmonary complications which might have been avoided.

After the brief vomiting which sometimes follows awakening, the comfort of a soft pillow under the head should not be withheld. The abdominal wound may be supported when the patient vomits to lessen the pain caused by this sudden impulse, a pillow placed under the knees reduces traction upon the suture. The patient's mouth is rinsed with lime water or milk of magnesia to remove the after-taste of the anesthetic; she may be allowed to inhale the vapors from a ball of cotton moistened with alcohol and acetic acid. The drp lips are kept moist; a wet cloth over the forehead and eyes helps to induce sleep. The cloth should not drip, nor should water flowing from it into the patient's ear escape notice. During the first twenty-four hours after operation one or two, or, if necessary, more doses of morphine sulphate, one-quarter grain each, are allowed hypodermatically. The first dose is usually given as soon as the patient becomes restless. A second, not sooner than four hours later, when post-operative discomfort reasserts itself. Finally, on the evening of the day following operation, a third dose is generally indicated. It is well not to continue the administration of morphine any longer than is absolutely necessary. After many abdominal operations there remains on the second or third day little more than a *soreness in the region of the wound and perhaps a dull ache in the back.*

It is important to analyze the patient's complaint. The occasional, migrating pain in the abdomen, or the sharp twinge that comes and goes, and appears on the second day or later, is usually a *gas pain.* It has its origin in the paretic intestine and not in the wound. The simple peppermint enema affords relief while morphine would be only of transient value and is not the logical remedy. Nothing is to be condemned more than promiscuous medication. Personally I believe that the treatment of a surgical case should be left entirely to the surgeon, all orders being issued by him until the patient is in a condition to be dismissed from his care.

Unnecessary division of responsibility leads to a division of the plan of treatment, complicating instructions to the nurses, and is not for the best interests of the patient. Frequently the surgeon's lack of knowledge of the dosage and action of drugs has helped in this regrettable complication. It is rare indeed that a drug is imperative in a

surgical case, but where one is indicated, the surgeon should appreciate the indication, and should not be at sea about the exact dosage, vehicle and conditions necessary to insure the desired effect.

I recall two patients to whom veronal was given a few days after operation. Both suffered from a characteristic confusional state, in which one of them got out of bed. The veronal might have been given with a full dose of sodium or calcium bromide in the hope of diminishing this effect, but even this medication can rarely be endorsed so shortly after operation. Two axioms worth bearing in mind are the following:

(a) After operation it is well to spare the rebellious stomach from drugs.

(b) Morphine is primarily not a somnifacient, but an *anodyne*, and the patient sleeps after its use because the disturbing pain has been relieved. Veronal, tetronal, trional, sulphonal, and allies on the other hand are, strictly speaking, somnifacients and not anodynes. They cannot allow *natural* sleep to set in *by removing the existing pain.* These drugs therefore cannot replace morphine for post-operative use. Of anodynes allied to morphine, codeine phosphate and dionine are readily soluble in water and can be given subcutaneously, but the action of these is feeble when compared with morphine, and, as far as I can see, the instance in which their post-operative administration might be indicated, must be exceptional.

No sleep is as refreshing and as beneficial as the *natural* sleep. After the first few days when the meridian of pain has been passed and anodynes have no purpose, it seems to me an error in judgment to yield too readily to the patient's request for "something to make her sleep." A patient who is resting in bed all day long cannot expect to sleep as soundly throughout the night as she was wont to do after a day of bodily activity. A nervous unrest produced by anticipation of stitches to be removed, worry about the nature of her operation or its ultimate outcome, some home trouble carried into the sick room by an indiscreet visitor, a thousand little things may upset the delicate nervous mechanism of the patient and be the cause of a wakeful night. An *artificial* slumber produced by drugs is not going to be of half so much benefit to such an individual as a *natural* one following perhaps a cool sponge-bath or a little mental influence.

The question frequently arises: How long shall we wait before catheterizing a patient after operation? In gynecological cases there is not infrequently a reflex dysuria, a reflex retention of urine which disappears after the first micturition.

Except in those cases in which the bladder had to be opened during the operation and there is danger of leakage, there is no reason why one should order immediate catheterization. The secretion of urine after operation is naturally diminished because the patient has lost a great deal of fluid by sweating and, in addition, she is receiving very little to drink. It is therefore easy to understand that twenty-four hours may elapse before the bladder is really distended to the point of discomfort, and then the patient voids spontaneously after making a slight effort. Some patients cannot void when there is someone in their presence, but are successful after the nurse has left the room; others should have a screen placed around the bed; others respond when they hear the running of the water at the hydrant; or gentle pressure over the lower part of the abdomen may start urination, or a cold application to the inside of the thigh, or water from a sponge trickling over the vulva, or gentle Faradization of the hypogastrium. It may happen that the initial difficulty is overcome after receiving enema. Some patients, however, defy every expedient and have to be catheterized regularly until the moment arrives when they are allowed to sit up and then voiding occurs without any difficulty whatever. Where the catheterization is necessary it should be done as infrequently as possible; once every eight hours is, as a rule, sufficient. The vulva and meatus urethrae are rinsed with a little warm 2 per cent. boric acid solution, and the catheterization is done aseptically and gently.

In the first days after operation it is of importance to note the *quantity* of urine, but the specimen itself is of little value for analysis until the first *five* days have elapsed. The reason is, that post-operative casts may appear in the urine for that length of time, and *no reliable opinion of the normal condition of the kidney can be formed from such analyses.* The analysis which tells us this is the one made of an average specimen of urine taken *before* operation. When an analysis is desired after operation the specimen should be collected *after* the fifth day. It is, of course, most accurate to obtain a sample of all the urine voided in twenty-four hours, that is, a *twenty-four hour specimen.* Where more extensive quantitative analyses are expected this should always be done. But, in practise, it is much more convenient and ordinarily sufficiently accurate, to take equal parts of urine voided in the morning and evening and

mix the two samples to obtain what might be called an *average specimen.*

For a period extending from three to five days after operation the total quantity of urine voided by the patient should be recorded by the nurse. Suppression of urine is an occasional cause of death after operation and any suspicion in this regard demands prompt and serious consideration. If the suspicion is verified, potent *eliminative* treatment has to be instituted, chiefly, I think, by stimulating the excretory function of the skin and the bowel surface. Hot bland drinks and a hot rectal infusion are quickly given and the patient is packed in hot blankets until she begins to perspire profusely. This procedure, simple as it is, and old as the history of medicine, is nevertheless sometimes life-saving in its significance.

The usefulness of drugs in such cases is limited; whether it is really an advantage to administer pilocarpin and similar diaphoretics in conjunction with the physical treatment, remains a disputed point. Some other measures, for instance, the electric light bed-baths on the other hand are, to my mind, frequently of invaluable service when these can be had. In some patients, at least, the relaxation which follows the active diaphoresis does not seem to be as pronounced after the electric light bath as it is after most other sweating maneuvres.

There are probably as many opinions on the subject of post-operative feeding as there are surgeons. I have always believed in simple things, and cherished the hypothesis that nature in her inner workings is pre-eminently simple.

The diet depends in a great measure on the condition of the stomach after narcosis. No doubt much can be done towards minimizing the amount of nausea and vomiting after operation by giving adequate attention to certain seemingly trifling details. There should be a proper understanding and co-operation between the anesthetist and the surgeon. If the patient receives a quarter of a grain of morphine sulphate hypodermatically, half an hour before narcosis, the anesthetist allows by the drop method the minimum quantity of anesthetic necessary to retain the surgical plane, and regulates *carefully* the access of air to the mask to prevent, at any moment, undue concentration of the anesthetic vapors, and the symptoms which would arise from crowding the anesthetic; if the surgeon mindful of the real welfare of his patient, is willing at times, to suffer the inconvenience of insufficient relaxation of the muscular wall of the abdomen, rather than urge on his anesthetist into crowding the anesthetic, and if he will handle the delicate structures and organs, especially the intestines, gently and as little as possible, he will have gained a great deal towards attaining this end. Some surgeons are unduly rough in their manipulations; time seems to them to be the only factor, the operation must be done quickly. But naturally, the result after such an onslaught is often to be anticipated; there is much post-operative distress, vomiting, gas-pain, and a turbulent convalescence.

Another mistake that is not infrequently made is to starve the patient before operation. Withholding food for *too long a period* before operation, it strikes me, does not diminish, but rather helps to increase the post-operative gastric upset. The starving body is more readily poisoned by the anesthetic than a well nourished one. All that is required as a rule is that the stomach should be empty, at least it should not contain *solid* or *coagulable food* when anesthesia is induced. A stomach possessing normal motility should contain no food-remnants five hours after the ingestion of a meal. In the case of gastric atony, or pyloric stenosis, the stomach might have to be washed to rid it of stagnating chyme. In practise, when the operation is set for 8 o'clock in the morning, the patient usually gets a normal supper, consisting of digestible food on the previous evening, and is allowed some non-coagulable drink in the early morning hours if she is awake. When the operation is to be at 2 o'clock in the afternoon the patient gets a good breakfast and some non-coagulable drink at 10. If the patient has not been shocked by brusk handling during the operation, nor saturated with anesthetic, she becomes conscious promptly and soon regains her natural tone. But little nausea or vomiting is the rule, and five or six hours after operation the nurse begins with small quantities of liquids, hot or cold, ranging from a sip to two fluid ounces.

The *liquid diet* of the patient at this period consists chiefly of water, hot or cold, weak tea, orangeade, lemonade, albumen drinks, barley, oatmeal or rice water, cider and other non-intoxicating drinks. Cow's milk is, as a rule, objectionable, it readily forms large *curds* and is difficult to digest; when it is allowed, it should be diluted to one-half with cereal water. The nurse begins the feeding cautiously and with judgment; it becomes her function to discover in each case which of these drinks agree best with the patient. There is no rule which holds good for all. Some patients have queer idiosyncrasies. I recall a patient whose stomach rebelled against everything until she got the draught of Pilsener beer for which she had

asked. In other cases where the vitality is low, champagne may be given as a stimulant, and albumen drinks as a food. Sometimes a tumbler of lime-water or diluted milk of magnesia, though promptly ejected, has a sedative action on the stomach mucous membrane, it seems, and makes it more tolerant than before.

As soon as the patient no longer experiences difficulty in retaining liquids, generally twenty-four hours or so after operation, comes the time when she is to be started on her *convalescent diet*, excepting this is for other reasons contraindicated, as in some operations on the stomach and bowel, where solid food is for the time being to be avoided for purely mechanical reasons. Though the patient at this time has but little appetite she is encouraged to take food. The nurse begins, for example, with custard, or boiled rice, a piece of dry toast and tea, or an egg, soft boiled, or poached, or even a thin sandwich of scraped meat. In her selection she caters to the patient's preference. If these agree, a piece of roast or boiled chicken, or beef, and then a chop with potato purée can safely follow in the patient's menu. Fats and sweets must be avoided. The stomach is easily upset by fatty food, while sweets are objectionable because they have a tendency to impair still more the appetite, which is already diminished.

The *convalescent diet* to which I refer might be correctly called a *light diet* in as much as it includes only food which is easily digested and does not produce a great deal of gas. "Soft diet" is a misleading term and should not be used as it often is, to designate a diet for patients recovering from an operation. It is not intended that the nurse should be guided in her selection of the patient's food by its *consistency*, it is the *digestibility* that she must consider. Indeed, many cheeses are *soft*, but very hard indeed to digest and no one would for a moment entertain the notion of including them in what is ordinarily meant by a "soft diet." In post-operative dietetics this term ought to be dropped; it is not significant, except if you will, in the case of an individual who is unable to masticate her food properly because she has lost her teeth.

This convalescent diet list excludes cabbage and leguminous vegetables such as lima beans, beans, peas, lentils, because they are rather difficult to digest and produce an excessive amount of gas. Pickles, Worcestershire sauce, mustard and much spice should be avoided. Vinegar, that is, the acetic acid in it, is very detrimental to digestion; the ordinary organic acids in fruits, citric acid in lemons, for example, seem on the contrary to have a beneficial effect. For this reason may be allowed lettuce, water cress or dandelion prepared with *lemon juice*, but not with vinegar. In fact, these leaf vegetables appear to be of certain value in supplying in acceptable combinations iron, sodium and other anorganic elements to the system; the human tissues do not consist solely of proteids, fats, carbohydrates and water. Spinach, too, belongs to this category of leaf vegetables; it contains an abundance of useful iron and other salts. It is, however, essential to prepare it properly; that is, with no more water than will steam off during the cooking process. If too much water has been added, and the supernatant liquid is decanted and poured away after cooking, most of the water-soluble salts and other substances to which the dish owes its peculiar food value, are lost.

It is well that the diet of bed-lying patients be *cathartic* in character. The nurse can regulate the patient's bill of fare so that some cathartic food or drink is always interpolated. Fresh fruits, or graham bread at breakfast, or corn crisp, shredded wheat, puffed rice, or other cereal; or stewed prunes or rhubarb; or, after supper, a glass of thin buttermilk; all stimulate the sluggish peristalsis. On the other hand, constipating foods such as white bread, cake, strong tea, are restricted or avoided altogether as the case may be. Notwithstanding, it is the exception especially among female post-operative cases, that does not require the aid of artificial catharsis or enemeta. It is to be anticipated that a patient will tend to be more constipated in bed than she was out of bed; the great stimulus to peristalsis given by bodily activity is wanting.

After hemorrhoid operations and small ano-rectal plastics it is merely necessary to restrict the patient to a convalescent diet from which all cathartic foods have been eliminated and the almost uniform result will be that she remains constipated for five days or longer. In view of this fact I could never fully understand why, in such cases, the surgeon should persist in the old routine of giving opium by mouth. Besides this, even the best of these preparations, the deodorized tincture of opium given in a little brandy, is liable to upset the irritable stomach. The patient receives morphine with discretion, but as often as she needs it to make her comfortable, just as in the case of other operations. It is always given subcutaneously and in a sufficient dose, a quarter grain. Morphine is given hypodermatically solely as an anodyne, *not* under the impression that it has a

material influence in inhibiting bowel peristalsis as does its ally, the crude drug opium when administered in the usual dose and manner.

There is generally not much gained by allowing the bowel to remain inactive for a period longer than five days. The contents of the large bowel become so inspissated and desiccated that ultimately their evacuation is accompanied by considerable mechanical difficulty and perhaps damage to the site of operation. Assuming that the sphincter ani has been put at rest by thorough stretching at the time of operation, the only reason for binding the bowel is in order to keep the rectoanal wound or suture-line clean until at least a superficial protective healing has taken place. This is surely the case after five days have elapsed. In fact, if the wound lips of the rectal nucosa are apposed with nicety, the wound is superficially, but sufficiently, sealed within a few days to protect it quite well from subsequent infection, especially if the bowel movements have been loose. It is for this reason also that I have referred to the importance of having at hand at the time of operation, a fine absorbable material of considerable tensile strength, best of all chronic filament of *medium* resistance which becomes absorbed in not less than five to seven days. Exceptionally only it is better in the case of the rectal mucosa, to use a *hard* chromic filament which normally resists absorption a little longer, seven to twelve days. This is indicated when there is much moisture in the rectum and secretion or discharge bathes the stitches and is apt to soften them prematurely. After the fifth day the bowel movements should be anticipated by a high-roll enema given through a well lubricated soft rubber rectal tube. The anal and rectal mucosa covered with an oily layer is less liable to be damaged during the act of defecation. The ideal cathartic to be given by mouth would be one which is not disagreeable to take and which produces a fluid movement with the least amount of griping and distress to the patient. Castor oil, though most children do not object to taking it, especially if sweetened with syrup or honey, is nevertheless a potion to which few adults take kindly. It might be given in the historic form, the castor-oil sandwich.

℞.

Sirupi Rubi Idaei.....fl.℥ij
Glycerini .....fl.℥j
Olei ricini .....fl.℥vij
Spiritus frumenti .....
or Spiritus Vini Gallici.....fl.℥ij

D. Pour carefully into a graduated medicine glass in the order given. The fluids will produce four distinct layers.

S. Castor-oil sandwich.

But at best it is a bulky dose, and its preparation is too complicated.

An attempt of mine to avoid these objections resulted in the use, for a time, of the following prescription:

℞.

Olei tiglii c.p.....mxvj
Olei ricini .....
Alcoholic absoluti aa.....fl.℥ss
Olei foeniculi .....
Olei myristicae aa.....mxxx

D.S. Average dose, fifteen drops in a little brandy. Maximum dose, thirty drops.

In this combination the potency of the oleum tiglii is not lost, but its griping effect is reduced to a minimum. The cathartic is very prompt and effectual in its action. The *drastic effects* of croton-oil administered in the *undiluted* state, such as blood in the dejecta, I have never observed, even with a dose of half a fluid-drachm. An objection to the general use of such a cathartic, however, is the fact that it has to be given in an alcoholic medium. Taken in milk it seems that at times its cathartic action is impaired.

In the long run it is *calomel* still, that is perhaps the most serviceable, for in the pre- and post-operative routine it is not the stimple stimulation of an after-dinner pill, but prompt and reliable evacuation of the bowel which is most often demanded. The calomel should be administered in a *single dose of three grains* to the adult, exceptionally two grains. It is a mistake to give it in divided doses for this purpose. Given in divided doses calomel is more prone to produce emesis when the stomach is irritable; more of the mercury is absorbed, and salivation results more easily.

In the rectal case, after the first evacuation of the bowel the chief difficulty is passed. The nurse sees to it that the patient's diet now becomes cathartic in character in order to stimulate the bowel naturally and to preclude constipated movements. *After the ordinary laparotomy or perineal operation in which the rectum is not sutured,* an evacuative enema of plain saline, or of 1 per cent. soapsuds is ordered after the third day. There is no serious objection however to giving such an enema earlier if the indication should arise. Not uncommonly on the day following operation a low *peppermint enema,* for instance, is administered to facilitate the expulsion of gas which distends the bowel unduly.

The *evacuative enema* besides freeing the large bowel of its stagnating contents, aids in inciting more active peristalsis in higher portions of the gut and thus promotes the expulsion of gas which makes the patient uncomfortable.

In these cases cathartics by mouth when given—generally on the fifth day—can be milder and more varied than in rectal cases where the bowel has been kept inactive. The patient here may even indicate the cathartic which she thinks agrees with her best and which she has been in the habit of using. A little magnesium citrate, or a simple extract of cascara sagrada pill contains no harmful ingredients and is not objectionable.

When the short period of gas-pain is passed, the habitual bowel activity restored, the temperature is approaching the normal, and there need no longer be any serious scruple about readily upsetting the patient's digestion by granting her more latitude in her meals, the transition to a rational *full diet* ought to be made. Its greater variety adds a healthy natural stimulus to the patient's appetite and digestion. While it does not overtax the patient's digestive powers it demands the exercise of the normal digestive function. The normal full diet which is least inimical to the digestive and eliminative organs of the human adult is not one, it seems to me, consisting largely of meats, nor is it a strictly vegetarian diet as others would have it. I have myself, for the sake of experiment, lived as a fairly strict vegetarian for a period of five years (1895-1900), and although the term is too short to allow me to draw many conclusions as to the effect produced in the human system by excluding animal food, I feel warranted in saying that purely vegetable food, although correctly prepared in a good kitchen, calls for a digestive energy which most of us do not naturally possess, and which is not readily developed even after years of vegetarianism. Also animals like the dog can be fed, and can exist on vegetable food, but it seems here, too, the digestive organs are not quite equal to their task. A healthy English greyhound pup was restricted to a vegetable diet from which all meat was excluded for a period of three years (1893-1896); the animal relished his food, grew and appeared at first to develop normally, but later signs of subnormal nutrition began to become evident, his hair grew dry and glossless, the musculature somewhat thin, though of good quality, panniculus adiposus scanty so that the outline of the ribs was unduly pronounced on his thorax. Unfortunately I cannot record the corrective influence of a change in the animal's food; some hardened wretch soon thereafter poisoned with strychnia my mute companion in this little study in vegetarianism.

The normal full diet for a post-operative case should not as a rule be an extreme diet; it should be a mixed diet in which flesh food is allowed moderately, once a day, or, in smaller quantities twice a day, certainly not oftener. The proper cooking of vegetables is a lost art, and as a consequence, perhaps, the average American eats too much meat. The constipated bowel with fluids stagnating in the cecum and appendix, and the torpid liver would, no doubt, be helped by the cathartic influence of *more* vegetable food. While aiming to put the patient on the normal full diet as soon as this is feasible, in most cases from the fourth to the seventh day after operation; a few cannot be subjected to such a rapid transition and may have to remain on a carefully supervised, convalescent, selected diet throughout the entire period of their convalescence. Occasionally one meets with such a patient who begins to eat and digest properly the moment she is up out of bed.

With few exceptions the patient may be placed on her side on the first or second day after operation. Of course, if she is a very adipose woman with an abdomen which overflows the iliac crests, it is wiser to keep her on her back during the entire post-operative period. After a few days such patients begin to become used to this position and do not feel the restriction as they did at first. In the case of inguinal or femoral hernioplastics a lesson is to be learned from children who are wont to lie on the operated side—evidently the position of comfort. Under ordinary conditions there need be no scruple in permitting this in the case of adults except when an operation for hernia has been done on *both* sides. It should be our endeavor to see how admirably nature often points out the way to us if we will but study her with a little insight. A sad spectacle is he who looks for therapeutic indications only in books and neglects to discover them in his patients.

The patient's second week—the week of waiting—should, to the fullest extent, be made available for her mental and physical rehabilitation. During the day her mind is kept occupied to prevent undue introspection and brooding. Wire puzzles, Japanese puzzles with complicated dovetailing engage the hands and brain, or brass-punching, or modeling in artist's clay, or folding gauze for the operating room, are all better than fine needle-work or much reading. A male patient may derive considerable pleasure from a cigar, it is not encouraged but allowed; while another, with a con-

structive bent, begins to while away his time by whittling some chess figures or a wooden chain. It is sometimes necessary to discriminate between visitors. Members of the family or friends with a cheerful disposition are desirable and may help to modify the patient's moods.

After gynocological operations where the median vertical, the mesial rectus, or the semilunar hypogastric incision is used, the lower border of the dressing is secured by means of a strip of zinc oxide adhesive two inches wide, before the patient is taken from the operating room. The strip reaches from the outside of one hip to the outside of the opposite one. It overlaps the dressing about ¼ inch below where it is made to adhere firmly to the symphysis immediately above the vulvar incisure. Sponging the area with a little ether aids materially in obtaining good adhesion of the plaster. An oblique incision of about one inch in the direction of each inguinal fold makes possible better adaptation and prevents the plaster from being pulled or lifted away from the symphysis so readily when the thighs are flexed. Laparotomy straps, consisting of strips of adhesive plaster one inch in width with tapes attached, two or three on each side of the abdomen, are tied over the dressing to keep it in place. In their stead a single wide piece of adhesive on each side lined with rubber tissue or with a single layer of gauze where it touches the dressing, can be laced in front in the manner of a corset. Nevertheless, in either case, it is well, as a rule, not to discard the traditional plain or many tailed binder which affords additional support and protection to the wound. In very fat subjects with a large incision the wound is not supported sufficiently, even with a snugly applied binder, and it is safer to *encircle* the abdomen with broad (four inch) strips of zinc oxide plaster beginning below and allowing each tour to be overlapped partly by the next, while the ends cross each other in front obliquely, over the dressing. I have had occasion to regret my neglect to observe this precaution in a rather adipose patient in whom, on account of the magnitude of the pelvic tumor a large incision was necessary. During a violent coughing spell the entire suture-line was burst open, allowing the intestines, partly covered by the omentum, to escape into the grasp of the dressing. Although the suture has been carefully done by layers, the catgut had *cut through* the friable tissues, each knot still remaining securely tied. In the case of an inguinal or femoral hernia the best support is given by a firmly applied spica. The bandage should be not less than four inches wide for the adult, and the bony prominences padded with non-absorbent cotton. In some cases it is indicated to reinforce the bandage with a single figure-of-eight tour of adhesive plaster.

Unless there has been some complication in the normal wound-healing, the first dressing is not due until the fifth, sixth or seventh day after operation.

In laporotomies dressed in the manner described it is merely necessary, after undoing the tape of the straps or adhesive corset, to reflect the dressing downward over the pubes, and the suture-line comes to view. If there is no redness or moisture about the stitches, no tender infiltration to the touch, the wound has healed by primary intention. Indeed, that is what is to be expected if the post-operative temperature chart shows no deviation from the normal aseptic reaction. If absorbable material has been used for suturing the skin, the patient learns with satisfaction that, contrary to the tradition, no sutures have to be removed. Silk-worm gut, which is not attacked by wound secretion and is inabsorbable, still remains the ideal suture for the angles of a *discharging* wound. But in the *aseptic laparotomy* where the wound is invariably closed without drainage, fine silk-worm can advantageously be substituted by chromic filament. It takes chromic filament of medium resistance on the average from seven to twelve days to undergo dissolution in the skin. After the semilunar hypogastric incision it is convenient to employ the glover's stitch with a fine curved needle; in other situations, where stitch-marks are to be avoided, the subcuticular suture. The reason why *plain* catgut should not be chosen is, that this material, when sufficiently thin to be used in the fine needles selected for skin repair, is absorbed before sufficient healing has taken place. *Michel's skin-clamps* call for an *early* dressing, generally on the fifth day. In case *adhesive strips* have been used for skin-closure early dressing is not vital. Silver-leaf cut into small squares and sterilized in packets of a dozen or more between two squares of thin wood (J. S. Lewis) has occasionally been used to cover the suture-line immediately after operation, in order to prevent the gauze dressing from adhering to it. At the first dressing the silver leaf is found more or less minutely pulverized, and when there is oozing from the incision it tends to create an undesirable crust.

Some very competent surgeons are still advocating the use of tiny drains of rubber tissue in the angle of a wound when there is much oozing, although it is presumably aseptic. At one time this was almost a routine after the ordinary hernio-

plasty. The use of such a drain would necessitate the opening of the patient's dressing after twenty-four hours, for its removal. The pressure exerted upon the wound dressing when the bandage is properly applied ought to be sufficient to prevent the accumulation of much lymph or blood. In herniae much depends on the proper application of the spica. In obese individuals difficulty in this regard is obviated by obliterating the gaping spaces in the subcutaneous fat at the time of the operation by means of a thin absorbable suture. It is surely better to attend to such details with proper precision while the patient is under the anesthetic than to be encumbered later at the dressings by complications which might have been avoided, and then attempt to make good a neglect. Where reasonable care and circumspection have been exercised at the operation, the post-operative treatment usually becomes a simple matter as far as the surgeon is concerned. The routine first dressing on the fifth, sixth or seventh day after operation consists in little more than an *inspection* of the wound, and the substitution of a new piece of sterile gauze for the one which has been in contact with the incision.

In gynecological laparotomy the protective gauze pad which was reflected for the dressing is returned to its place and the laparotomy straps or corset flaps are fastened over it as before. Only at the second, that is, the last dressing, the entire adhesive support is removed and the skin freed from the adherent zinc oxide by means of ether or benzine. If there happens to be a point in the wound where the apposition was not good and healing was delayed, a tiny bit of sterile gauze and a small strip of adhesive are all the dressing required. The area where the plaster has been is thoroughly powdered by the nurse. A supporting belt need rarely be ordered. The so-called "straight front" corset which is now in vogue is constructed on sounder principles than the old-fashioned type; it lifts the abdomen from below upward and gives adequate support to the young and still distensible scar. A corset of neat pattern has been constructed which consists of two pieces, one shifting over the other, and which allows more freedom in bending the body forward. It is well adapted to the needs of corpulent patients with a pendulous abdomen who are otherwise difficult to fit properly. The nurse instructs the patient to apply the corset in the recumbent posture and to lace it always from below upward. The cases of inguinal or femoral herniorrhaphy leave the hospital wearing as a temporary support of the recently healed wound a tightly wound spica. This is reapplied once more as soon as it loosens, which is usually in the course of a week.

The question, "When shall the patient be allowed out of bed after an aseptic laparotomy?" has evoked some diverging opinions. Some surgeons lay little stress on the stretching of the scar and the possibility of a post-operative hernia. But it seems unfair to the patient to disregard these factors, and better to retain the *average aseptic laparotomy in the recumbent position for not less than twelve days.* In the case of a fat individual with poor healing power an additional week is not superfluous. Cavil none will, that the patient *can* be gotten up almost any day after operation, but the salient point at issue is not what can be done, but what is most adequate if the patient's *future* welfare is considered. Indeed, for that matter it might be safer to allow a patient to sit up on the third day after an abdominal section, than on the sixth or seventh, when the stitches begin to be dissolved.

By far the greater number of laparotomies are uncomplicated in their recovery and can be discharged from the hospital on the fourteenth day of their stay. On the morning of the day before dismissal the patient for the first time assumes the vertical position, she is permitted to sit up in bed. Some patients, particularly anemic ones, are inclined to become dizzy during this first attempt, and a hot exhilarating drink may be given as a prophylactic measure. In the afternoon, the patient is allowed to sit in a chair. It need scarcely be specified that she may walk; for the moment she is left alone with the nurse, comes the natural temptation to venture a few steps. Finally on the morning of the last day a final revision of her condition is made. She will, by this time, have reaccustomed herself to be up and about, and prepares herself for the event of her departure.

As soon as the patient is dismissed from the surgeon's care important data and details concerning her condition should be transmitted to the family physician or specialist into whose hands she reverts. It is an attention due the patient as well as the physician who has to take further charge of her, and now becomes responsible. Perhaps some of the problems concerning the proper ethics to be observed by the physician or surgeon regarding the transfer of a case, may become very much simplified if both truly agree that the *patient's best interest* should determine their course.

1041 MADISON AVENUE.

American Journal of Surgery

PUBLISHED BY THE

SURGERY PUBLISHING CO.

J. MacDONALD, Jr., M.D., President and Treasurer

92 William St., N. Y., U. S. A.

To whom all communications intended for the Editor, original articles, books for review, exchanges, business letters and subscriptions should be addressed.

SUBSCRIPTION PRICE, ONE DOLLAR
FOREIGN, SIX SHILLINGS

Original Articles and Clinical Reports are solicited for publication with the understanding that they are contributed exclusively for this journal.

It is of advantage to submit typewritten manuscript; it avoids errors.

CHANGE OF ADDRESS. Subscribers changing their addresses should immediately notify us of their present and past locations. We cannot hold ourselves responsible for non-receipt of the Journal in such cases unless we are thus notified.

ILLUSTRATIONS. Half-tones, line etchings and other illustrations will be furnished by the publishers when photographs or drawings are supplied by the author.

SPECIAL NOTICE TO SUBSCRIBERS

The "American Journal of Surgery" is never sent to any subscriber except upon a definite written order. Present and prospective readers please note this.

WALTER M. BRICKNER, M.D., Editor

NEW YORK, SEPTEMBER, 1912.

CONCERNING THE REMOVAL OF THE PECTORALIS MAJOR IN THE RADICAL OPERATION FOR MAMMARY CARCINOMA.

The removal of the sternal portion of the pectoralis major with its fasciæ is generally accepted as an essential part of the technic of the radical operation for breast cancer. It is interesting to note, however, that that acceptance is not universal. Dr. John M. Murphy teaches* that the removal of the muscle is unnecessary. For ten years or more, he says, he has adopted the plan of removing all the "subpectoralis major fascia and fascia between the pectoralis major and minor muscles. We have, therefore, removed all the chains of lymphatics through which metastases occur, and we have accomplished as much for the protection of this patient by the removal of these as we can by the removal of the entire pectoralis major muscle." Murphy says that return of the neoplasm in the pectoral muscle is a rare occurrence, of which he has seen but a single instance.

Murphy also teaches that the distressing edema of the arm so often seen after the radical amputation of the breast, is not a lymph-edema, as most surgeons believe that it usually is, but is due to compression of the large vessels in the axilla by the contraction of new-formed connective tissue in the dead space left after removal of the axillary glands and fat. To prevent this he makes a flap of the pectoralis major, and implants it into the axilla as a protecting cover or pad for the vessels.

Recently Dr. J. W. Kennedy, of Philadelphia, has also uttered a protest against the unnecessary sacrifice of the pectoralis major in the radical operation.** He quotes the late Dr. Joseph Price as advocating the retention of the muscle and as having said that in over 1,200 operations for malignant tumor of the breast he had not seen a single return in the pectoral muscles. Kennedy's observation in several hundred cases of his own confirms Price's experience in this respect.

That the removal of the large pectoral muscle (sternal portion) can be performed without seriously affecting the function of the arm is no excuse for its performance if it is unnecessary. On the other hand, that its removal is somewhat mutilating and somewhat impairs function, is no reason for retaining it if its retention adds to the danger of recurrence. The question is, therefore, important enough to deserve inquiry.

In Paul Bartel's *Das Lymphgefäss-system* we find the following: In 366 autopsies on cases of breast cancer, v. Töräk and Wittelshöfer found 58 with metastases in the pectoral muscles. [Many of these, however, were probably direct extensions in neglected cases]. In 16 out of 33 breast amputations Rotter found carcinomatous nodules on the vessels, in one-third of which cases these were beneath and in the pectoralis major; in 11 cases these nests were along the superior thoracic artery between the two muscles; twice along arterial branches in the major muscle; twice the tumor was found extending into the muscle. Contrary to Heidenhain's teaching that metastasis in the muscle occurs late, Rotter found that in about half his cases it occurred very early.

The purpose of the radical operation for cancer of the breast, as for cancer elsewhere when it can be carried out, is to remove the growth-bearing viscus, the glands into which it immediately drains and *all the lymphatics between the two.* Is Murphy correct when he says that by removing "all the sub (?) pectoralis major fascia and intermuscular fascia between the pectoralis major and minor" he removes "all the chains of lymphatics through which metastases occur"? Bartels says that there

*The Surgical Clinics of John B. Murphy, M.D., W. B. Saunders Co., Vol. 1, No. 1, pp., 6-10.

**Medical Council, August, 1912, p. 283.

is a very important lymph channel, difficult to demonstrate by injection, passing from the mammary gland directly through the pectoralis major to one or more glands between the vessels or also to the infraclavicular glands. Bartels demonstrated by injection two such lymphatic vessels and he urges, as an anatomist, the removal of the pectoralis major in the operation for breast cancer.

Poirier, Cunéo and Delamare also describe a lymphatic channel from breast to retro-pectoral and subclavian glands, through the pectoralis major, but they say it is inconstant. In one case Heidenhain found lymph channels in the substance of the muscle blocked with cancer cells. Rotter's observations have been referred to. It must also be remembered that lymphatics pass from the mamma through the pectoralis to the intercostal and internal mammary glands.

We are forced to conclude that the teaching of Price, Murphy and Kennedy is not supported by pathological and anatomical findings.—W. M. B.

THE FUTURE OF PROCTECTOMY FOR CANCER.

It was not many years ago that cancer of the rectum was classified among the hopeless diseases. Within the last twenty-five years the professor of surgery in one of the important medical schools in New York taught that if a cancer could not be encompassed by the finger in the rectum it was inoperable.

The early operations were performed through the perineum, and began with an incision around the anus. The lower end of the bowel, bearing the tumor, together with the sphincter ani, was amputated after being dissected free; the stump of the rectum was brought down, and sewed to the skin margin of the wound, and the patient was dismissed with a trumpet-shaped incontinent opening, to await usually internal recurrence of the disease.

Then came the recognition of the fact that the old operation in the great majority of cases did not allow of amputation of the rectum high enough above the disease. To provide a wider access the methods associated with the name of Kraske, of Freiburg, were devised. Excision of the coccyx and sacrum up to the third sacral foramena permitted not only higher approach, but also allowed of the disposal of a shorter bowel by virtue of the higher location of the new anal orifice. The sacral anus, sometimes brought out through the gluteus maximus, was an improvement upon the older operation, and the proportion of recurrences was diminished, but still it remained high.

Studies of the lymphatics of the pelvis have shown the upward tendency of the lymph current, and the necessity of intercepting the disease high above the primary deposit. Operative attacks from below always found the surgeon straining to reach the highest point possible in order to get above the disease and then relaxing his vigilance in the interest of preserving enough bowel to make a presentable anus. This created an undesirable stress between the ethical surgical sense of the operator and his mechanical ingenuity.

Now comes the era of the high approach. An abdominal section, with the patient in the elevated pelvis position, exhibits the interior of the pelvis empty of all intestines except the rectum. The rectum may be freed, the extent of secondary involvement observed, the line of lymphatics in the mesorectum extirpated, and as much bowel removed as is necessary to permit a satisfactory completion of the operation. By the abdominal approach the tendency of the surgeon is to remove more and more of the lower end of the intestine because up to the middle of the sigmoid he secures greater and greater mobility of the upper segment. This is in contrast with the low operation in which to secure adequate intestine for the completion of his operation the surgeon succeeds best as he makes the amputation lower and lower.

The high operation is destined to become the procedure of choice. An attack upon carcinoma which does not expose freely the chief lines of lymphatic distribution is footless as a routine procedure. Experience has worked this out as a well recognized principle. The hazards of the operation then become largely those of intraabdominal operations. Surgical technic has reduced these to a great degree, although their minimization is undoubtedly not yet attained.

The procedure which is to grow in favor should free the bowel from above downward, as far as possible, divide it above at the point which insures removal of the disease, unite the lower end of the upper segment with the anus, complete the peritoneal toilet, and then finish the operation below. In order to secure relaxation enough to bring down intestine to the anal orifice, no limit is placed upon the operation. The sigmoid, descending colon, or even the transverse colon, may be called upon to furnish the new anus. Such a procedure can be terminated at any stage by bringing the lower end of the upper segment into an inguinal opening, and

completing the operation below at a later sitting.

The full benefits which surgery is to offer in this once hopeless disease have not yet been secured, and improved technique is destined to secure an end result which shall make life to the patient happy as well as prolonged. J. P. W.

HAND INFECTIONS.

In no other superficial portion of the body are the deforming and function-impairing results of pyogenic infection so out of proportion to its physical extent as in the hand, and in no affection is needed more a nice surgical judgment based on abundant experience. A phlegmon of the finger too timidly treated will expose the tendon to destruction, and treatment too vigorous will often accomplish the same result. The average house-surgeon can far more be trusted to remove a diseased appendix than to handle a tendon-sheath infection of the hand.

Although mild-appearing infections of the finger lead often to processes involving a large portion of the hand, those experienced with these types of cellulitis have recognized that their development is not haphazard and irregular, but follow more or less regularly certain paths with the production of fairly regular phenomena. Several years ago Dr. Allen B. Kanavel, of Chicago, undertook, clinically and experimentally, to elucidate the laws governing the development of the various types of hand infections and, correspondingly, the rules for their rational surgical treatment. Much of his work he published serially in *Surgery, Gynecology and Obstetrics* in 1905, and his complete studies he has published as a monograph* within the past year.

We cannot too strongly urge upon recent hospital graduates the importance of supplementing their major surgical work in the amphitheater by several years of experience with hand infections, and other so-caled minor surgical conditions, in an active out-patient service; and we would also advise a careful reading of Kanavel's book before they undertake to operate upon a "cellulitis of the hand."—W. M. B.

*Infections of the Hand—A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. Lea & Febiger, 1912.

If, in a case of probable "appendicitis" in a child, the history is of several attacks of pain, if these are severe paroxysms with complete remissions, and if there is a comparatively small movable mass in the iliac region, examine the stools for blood. The case may be one of intussuscepted appendix.

Surgical Suggestions

If the administration of thyroid extract to a patient suspected of exophthalmic goiter increases the symptoms the diagnosis is more probable.

When there is persistent irritation of the throat without local cause, examine the chest. This may be one of the earliest symptoms of mediastinal tumor or enlarged bronchial glands.

Irrigation of the throat with ice water from a fountain syringe will relieve the congestion and the pain in acute follicular tonsillitis.

When confronted by an irregular rounded growth appearing to spring from the sternomastoid in the middle third of the neck, bear in mind the possibility of a carotid gland tumor.

Ligation in continuity of the external carotid should not be close to its origin. The proximal clot may extend into the common, and be swept through the internal carotid, to the brain.

A small erosion of the trachea may give rise to an hemoptysis, which must be distinguished from a lung hemorrhage by the absence of pulmonary and constitutional symptoms and by the fact that the blood is in small clotted lumps.

Pneumogastric paralysis after an operation involving manipulations about the nerve, *e. g.*, removal of tuberculous cervical lymph nodes does not necessarily indicate that the nerve has been accidently cut or tied. The condition may be transitory and result from traumatic or inflammatory irritation.

Silver wire sutures and wire filigree are useful in those hernioplasties in which a large gap cannot be closed by approximation of the tissues, or in which the tissues are so thin that when approximated, they cannot be expected to provide support. In all other hernioplasties it has not been demonstrated that wire possesses any advantage over well chromicized catgut or kangaroo tendron. The prevention of recurrence, in hernioplasty, depends not on what the surgeon puts in his suture, but on what he puts his suture in.

Surgical Sociology

Ira S. Wile, M.D.
Department Editor

The New York State Department of Labor has just issued a small bulletin on the reporting of industrial diseases. The law requires industrial poisonings to be reported. "Every medical practitioner attending on or called in to visit a patient whom he believes to be suffering from poisoning from lead, phosphorus, arsenic or mercury or their compounds, or from anthrax, or from compressed air illness, contracted as the result of the nature of the patient's employment, shall send to the Commissioner of Labor a notice stating the name and full postal address and place of employment of the patient and the disease from which, in the opinion of the medical practitioner, the patient is suffering, with such other and further information as may be required by the said Commissioner."

It is a matter of great importance that physicians should appreciate the necessity of assisting in the compilation of statistics relating to occupational accidents and diseases. The medical profession alone can supply the technical information with regard to the nature, frequency and incidence of industrial diseases and accidents. The State Department of Labor, with its knowledge of industrial processes, will then be in a position to constructively determine plans for eliminating some of the hazards of industry.

The principal sources of danger in occupation arise from metal poisonings, dust, irritations, the action of gases, fumes and vapors. Injuries to eyes and ears result from continued exposure to light, heat, dust and noise. There are injuries of the nerves and muscles following occupational strains. Occupation neuroses, deformities, contusions and open wounds are included as in the grist of industrial accidents. There are also among the industrial diseases the dermal effects of acids, alkalies, dyes and other irritants. Caisson disease and other ill effects resulting from compressed air are also reportable. Direct infections from hides, wool and similar other commodities of an unclean nature are examples of recognized industrial diseases of a surgical nature.

For a full list of the industrial diseases as classified by the International Association for Labor Legislation, reference should be made to Bulletin No. 86, of the U. S. Bureau of Labor, or Bulletin No. 100, May, 1912, which contains the most complete list of industrial poisons. The necessity of reporting industrial accidents and diseases has awakened legislation to this end in California, Connecticut, Illinois, Michigan, Wisconsin, New York, Maryland and New Jersey.

While the Public Health and Marine Hospital Service of the United States is well known because of its scientific research and maritime quarantine as well as its sanitary reports, its surgical service has been entirely overlooked. During 1911 in 23 hospitals and 120 dispensary stations, 52,209 seamen were given treatment, 15,442 receiving care in hospitals. There were 1,836 operations performed with a post-operative mortality of 24.

The variety of conditions furnishing the greatest number of operations involved the bones (104), joints (33), amputations (71). There were 314 abdominal operations, of which appendicitis supplied 72. Hernias to the number of 223 were operated upon, with 153 treated by the Bassini method. The male organs of generation were the subjects of surgical care in 280 cases. This record is highly suggestive of the valuable individual service which is given by this department of the government, and indicates that the seamen ashore are receiving excellent care and attention. It is to be regretted that equally excellent facilities are not available for seamen afloat.

In the light of the constantly recurring cataclysms which destroy at one blow countless human beings, it is well to pause and take thought of the daily loss of life not fraught with dramatic possibilities nor sodden with the aggregate of pathetic tears. In the midst of life it is but foresight to think of death.

With the present high cost of living, with the fierce competition which exists in the medical profession, the standard income of the practitioner does not permit him to lay aside large funds for the rainy day. All too many physicians die leaving their families unprotected and dependent in large measure upon assistance which may be secured from family, friends, or through the activity of the survivors if still possessing sufficient strength and ability.

The urging of life insurance upon physicians would seem to be unnecessary, and yet there is every reason why a surgeon, above all, should adequately protect his family against the distressing results of his demise. With the death of the physician, all income stops. But a small proportion of the accounts still kept on the books are collectable. The legal obstacles of proving services rendered prevents the successful collection of bills protested. The business man dying leaves behind him an established business, and even though the business should be wound up, there are bills collectable and assets in the form of the business itself.

If every physician would regard his annual income or an average of his income for five years as a legitimate return from a theoretic capital in order to provide a small income for his family after his death, he would be obliged to carry insurance for at least ten times the amount of his average annual income. In the industrial worlds,

there are benefit societies, factory and shop organizations, trade unions, fraternal orders, lodges and the special types of benevolent associations which attempt to meet this period of stress for the industrial worker.

The mutual associations for physicians attempt in part to give physicians an opportunity to help each other to a small amount of insurance. It is essential for physicians to think of their families in the light of their condition after the grim Reaper has made his call. It is not alone the promoting of thrift, the encouragement of saving, but there is also the providing against the incubus of debt and the struggle for existence which no father desires to contemplate as a factor in lessening the standard of living of his home when he is no longer there to provide for it.

The provision for the physical care and the education of the children is a responsibility as fully resting upon the father physician dead as if he were still living.

Physicians without number are constantly examining for insurance companies, and wise is the man who uses a portion of his income from this source for immediate return back to some company in the shape of premiums. A good provider provides for the future; the present takes care of itself.

The effect of definite endeavors to restrict industrial accidents has received much attention. The efforts of the Remington Typewriter Works to decrease accidents among its employes should be encouraged by, and encouraging to, employers who have the interest of their employes at heart. Attention was given to safeguarding of machinery and providing the machinists with conditions of safe working. In addition to this there was continued instruction of the employes in accident prevention. During five years no fatal accident occurred and no limbs or eyes were sacrificed. The only accidents from machinery were slight injuries to fingers. All other accidents were due to slight cuts or bruises, falls, scalds. During the five years ending December 31, 1911, the number of employes increased 66 per cent., the number of machines increased 25 per cent., while accidents of all kinds per thousand employes decreased 46 per cent.

HOSPITAL SOCIAL SERVICE.

Social service work should not be engaged in as an end in itself. It should be regarded as an expedient, bound ultimately to pass away, along with those things which have called it into temporary being, unless we are hopeless of our social future. While accomplishing a large measure of good, social service does not strike at fundamental conditions, concerning itself too much with end-results. We are too timid to quickly attain fundamental social necessities and fritter away our energies in small parcels upon immediate, isolated, secondary problems. Palliation is the order of the day and there is an unwillingness to concede the feasibility or to admit the soundness of any radical social programmes. That progress can be made only through a slow evolutionary process is axiomatically insisted upon, and those who believe otherwise are dangerous agitators. Positive ingenuity is displayed in side-stepping anything approaching social surgery.—*The Medical Times.*

Book Reviews

Pellagra. By STEWART R. ROBERTS, S.M., M.D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons; Physicians to the Wesley Memorial Hospital; formerly Professor of Biology in Emory College. Octavo; 272 pages; 89 special engravings and colored frontispiece. St. Louis: C. V. MOSBY Co., 1912. Price, $2.50.

In this interesting and well-written book, the author discusses at length the history, distribution, diagnosis, prognosis, treatment and etiology of pellagra. He gives clear-cut clinical pictures of the various types of this protean disease and then devotes a chapter to each of the systems chiefly affected,—the gastro-intestinal tract, the nervous system and the skin. The chapter dealing with the dermatological manifestaions of pellagra is especially satisfactory, since it is illustrated with exceptionally fine photographs which vividly bring before the reader the lesions as they appear on the skin.

In the chapter on the cause of pellagra Roberts is inclined to doubt the correctness of the theory which ascribes the disease to the eating of spoiled corn. Although this theory has been held for one hundred years, little has been added to it. In a series of experiments in which 56 hospital patients were fed on a corn-free diet, while 56 others were fed on corn for one year, no definite conclusions could be drawn. The evidence adduced by those who believe the disease is due to an insect parasite and especially that it is connected in some way with the proximity of the dwellings of pellagrins to mountain streams is much more convincing. Experiments in progress in Kansas in which insects are allowed to bite pellagrins and are then transferred to monkeys may be productive of results.

Throughout the book the subject-matter is well handled and the style is clear and interesting, and numerous illustrative case-histories are introduced, leaving the reader with a very definite picture of this as yet but poorly understood disease.

Immunity—Methods of Diagnosis and Therapy and Their Practical Applications. By DR. JULIUS CITRON, Assistant at the University Clinic of Berlin, second medical division. Translated from the German and edited by A. L. GARBAT, M.D., Assistant Pathologist, German Hospital, New York. Octavo; 209 pages; 27 illustrations; two colored plates and eight charts. Philadelphia: P. BLAKISTON'S SON & Co., 1912.

Dr. Citron's purpose in writing this book was to present a concise outline of immunity and its practical aspects in a manner that the student or general practitioner can readily understand Beginning with the discussion of active immunity he proceeds to the subject of tuberculin diag-

rosis and therapy. Toxines and antitoxines are then discussed. In this group the author includes a discussion of the anatoxines of hay fever and snake poison. Then follow chapters on agglutination, precipitins, bacteriolysins, hemolysins and cytolysins. Two chapters are devoted to the theory, technic and practical application of the complement fixation tests. The work concludes with two chapters on opsonins, passive immunity and anaphylaxis.

The book is a very complete presentation of the subject. The exposition is exceptionally clear and should be readily understandable to those who have not kept track of this complicated subject. Especially commendable is the judicial and conservative tone in matters of controversy. The author has made the work as practical as possible and has emphasized the diagnostic, therapeutic and prophylactic aspects of the subject.

Gonococcal Infections. By C. E. Pollock and L. W. Harrison, of the Royal Army Medical Corps. Small octavo; 222 pages. London: Oxford University Press, 1912.

This little manual makes no pretense to completeness or to special originality. As the authors state by way of a brief preface, specialists in genito-urinary surgery and others who have had ample experience will find nothing new in the book. At the same time the book gives a fairly comprehensive outline of the subject and for the general practitioner a very clear exposition of the behavior of the gonococcus, the pathology induced by it and the adequate treatment of the lesions.

The Healthy Baby. By Roger H. Dennett, M.D., Instructor in Diseases of Children in the New York Post-Graduate Medical School; Assistant Attending Physician to the Babies' Wards in the New York Post-Graduate Hospital, etc. Duodecimo; 235 pages. New York: The Macmillan Company, 1912.

This little book endeavors to present the chief facts of use to the mother concerning the health and the care of the baby. Emphasis is laid on the normal infant and pathological conditions are wisely omitted or merely mentioned. The book is sensibly conceived and will be found useful to put in the hands of the young mother.

Text-Book for Nurses. Anatomy, Physiology, Surgery and Medicine. By E. W. Hey Groves, M.S., F.R.C.S., Assistant Surgeon, Bristol General Hospital; Clinical Lecturer, University of Bristol, and J. M. Fortescue-Brickdale, M.A., M.D., Assistant Physician, Bristol Royal Infirmary; Clinical Lecturer, University of Bristol. Octavo; 407 pages; 205 illustrations. London: Oxford University Press, 1912.

This is a well conceived work, affording a single volume of reference for nurses on the several subjects—anatomy, physiology, medicine and surgery.

Books Received

Der Endemische Kropf, mit besonderer Berücksichtigung des Vorkommens im Königreich Bayern. Von Dr. A. Schittenhelm, a.o. Professor der Klinischen Propädeutik, und Dr. W. Weichardt, a.o. Professor und 2. Direktor d. Kgl. bakteriologischen Untersuchungsanstalt an der Universität Erlangen. Berlin: Julius Springer, 1912. 9 marks.

Pathology of the Eye. By P. H. Adams, M.A., M.B., D.O. (Oxon), F.R.C.S., Surgeon to Oxford Eye Hospital; Consulting Ophthalmic Surgeon to the Radcliffe Infirmary. Duodecimo; 194 pages; 43 illustrations. London: Oxford University Press, 1912.

The Care of the Skin in Health. By W. Allan Jamieson, M.D., F.R.C.P.E., Surgeon, the King's Body-Guard for Scotland; Consulting Physician for Diseases of the Skin, Edinburgh Royal Infirmary. Duodecimo; 109 pages. London: Oxford University Press, 1912.

Nouveau Traité de Chirurgie. XXVI. Maladies du Pancréas, de la Rate et du Mésentère, par G. Chavannaz et J. Guyot, Professeurs à la Faculté de Médecine, Chirurgiens des Hopitaux de Bordeaux. One volume grand in-8; 403 pages; 126 figures dans le texte. Paris: J. B. Bailliere et fils, 1912. Broché, 10 fr.; cartonné, 11 fr. 50.

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Published Bi-Monthly. Vol. I., Nos. 3 and 4. Philadelphia and London: W. B. Saunders Co., 1912.

Progress in Surgery

A Résumé of Recent Literature.

The Present Status of Abdominal Cesarian Section. When and How Should the Operation Be Performed. Reuben Peterson, *Surgery, Gynecology and Obstetrics,* July, 1912.

When it becomes a choice between the two lives the mother should be given the preference, for with the mother dead and the fetus surviving it is extremely problematical whether the latter will survive and reach maturity. In cases of major pelvic deformity, *i.e.*, where the conjugate vera is below 7 or 7.5 cm., there is no choice except to do a Cesarian section. Induction of the labor and even pubiotomy do not enter into competition with abdominal section. In minor degrees of pelvic deformity, *i. e.*, where the conjugate vera is more than 9.5 cm., neither Cesarian section nor induction of labor need be considered, as the patient may deliver herself with or without some little aid as the forceps. In cases where previous pregnancies have shown that each successive child is bigger than its predecessor, the question between induction of labor and Cesarian section may be considered. In this class of cases it is wise to permit the patient the test of labor. The wishes of the parents should also be considered. Craniotomy is preferable to Cesarian section under the following conditions:

1. When the mother is septic.
2. When the foetus is feeble and not likely to live under any conditions.
3. When the fetus is a monster or so badly deformed as to render its future existence problematical or undesirable.
4. When from the necessities of the case either craniotomy or Cesarian section must be performed by unskilled hands.

In a general way it may be stated that in clean cases classical Cesarian section, the Sänger operation and its modification should be employed. In septic cases where it is thought wise to do a Cesarian section, the choice of operation will be between supravaginal hysterectomy (Porro operation), panhysterectomy and the various forms of the extra-peritoneal procedure.

Some End Results of Intestinal Stasis in Children. L. E. Barrington-Ward, London, England. *Surgery, Gynecology and Obstetrics.*

Intestinal stasis in children is, according to the author, responsible for the symptoms as evidenced in tuberculous joint disease, rheumatic arthritis, Still's disease, ulcerative colitis, appendicitis, etc. The diagnosis rests chiefly upon *x*-ray examination of the alimentary tract. In a typical case bismuth retention will be noted 52 hours after ingestion. The appropriate treatment is exclusion of the large bowel after Lane's method by performing an ileo-sigmoidostomy. The results are surprisingly favorable and rapid in the above-named conditions.

The Prevention of Ophthalmia Neonatorum. (*Zur Verhütung der Augeneiterung der Neugeborenen*). P. ZWEIFEL, *Zentralblatt für Gynäkologie*, July 6, 1912.

The popular use of silver nitrate in 1 per cent. solution or in 2 per cent. solution (Crédé) has been tolerably satisfactory. But that there has been a number of untoward effects, notably in the irritation following the use of the silver nitrate solutions, in some cases resulting in corneal desiccation and opacity, has led Zweifel to resort to the use of argentum aceticum. This he finds is soluble in a dilution of 1-100 in ordinary room temperature and never exceeds this concentration. It also remains unchanged for a very long time. This is not true of the nitrate of silver. In obstetric clinics it not infrequently happens that midwives use a stronger solution, *i. e.*, 10 to 20 per cent. of silver nitrate by mistake, with disastrous results to the infant's eyes. In the past 12 years Zweifel has had the acetic silver solution of 1 per cent. employed in a series of about 21,000 infants, with blennorrhea in only 0.15 per cent. of the cases. The reaction following the use of the argent-aceticum was very much less than from a similar concentration of silver nitrate.

Ligature of the Umbilical Cord. (*Unterbindung der Nabelschnur.*) WERNER MÖLLER, *Zentralblatt für Gynäkologie*, July 20, 1912.

On the basis of 654 cases in which both simple ligation of the umbilical cord leaving the maternal side open and a control series of cases in which the cord was divided between ligatures, Möller comes to the conclusion that the one ligature to secure the umbilicus of the child lessens the time required for the expulsion of the placenta. The great majority of placentæ are delivered within 15 minutes and only in a very small percentage of cases more than 30 minutes are required. This is much more favorable than simple ligation. The average amount of blood lost from the placenta is 76-78 grammes. The small size of the placenta permits the uterus to expel it easier from the cervico-vaginal canal.

The Non-Surgical Treatment of Exophthalmic Goiter. SOLOMON SOLIS COHEN, *N. Y. State Journal of Medicine; American Journal of the Medical Sciences*, July, 1912.

Surgical treatment of Grave's disease rarely becomes necessary in cases recognized early. In about 15 to 20 per cent. of cases surgery is made necessary by failure or inability to institute prompt or proper and persistent non-surgical treatment. In about 5 per cent. of cases surgery may become necessary, despite early and skilful hygienic and medicinal management. The principal element of medical treatment is rest, physical and mental, to be modified according to circumstances. Fresh air and regulation in diet are necessary, much as in pulmonary tuberculosis. Active elimination must be maintained. Educational exercise of the vasomoter system by hot and cold applications is always of benefit. Gastric and intestinal lavage may be helpful. Under such management, with perhaps occasional symptomatic medication (especially the use of intestinal antiseptics), somewhere from 25 to 30 per cent. of all patients may be expected to get well—the cases of so-called spontaneous recovery.

The application of ice-water coils over the heart and over the spine, the administration of trustworthy preparations of well-chosen organ extracts, particularly thymus, adrenal, pituitary and parathyroid preparations, together with various forms of auxiliary medication (and perhaps the use of certain mechanical manipulations, topical and radiant applications and electric modalities), will increase the number of recoveries to 80 per cent. or more.

Quinine and Urea Hydrochloride Solution as a Local Anesthetic for Tonsillectomy. HARRY KAHN, Chicago. *The Therapeutic Gazette*, July 15, 1912.

The author finds that "the solution of quinine and urea hydrochloride, 1 per cent., comes nearer the ideal local anesthetic than any other drug so far introduced for this purpose. It is non-toxic in the dosage required for complete local anesthesia; it is non-irritating, and reduces the danger of hemorrhage to a minimum. In the Michael Reese Hospital it has been observed that when the quinine urea hydrochloride solution has been used in tonsillectomy there is almost no bleeding after the patient has left the operating room; and, further, in this hospital a secondary hemorrhage has never been known to follow the use of this drug." It has been found best to allow the patient to take a full meal a short time before the operation, for, first, the local anesthetic seems to act better at this time; second, the patient is more composed, and, third, the starvation necessary after the operation is not so irksome. In using the quinine-urea anesthesia two points are of importance: First, enough of the solution must be used—45-60 minims into each tonsil, and, second, a wait of 10 to 15 minutes is necessary after the injection in order to give the drug time to take effect.

Essential Hematuria. A. NELKEN. *The American Journal of Urology*, July, 1912.

Nelken believes essential or "idiopathic" hematuria to be due to some form of chronic nephritis. The cases are usually treated for stone, tuberculosis or cancer of the kidney The lesion may, as in Albarran's case, be only as large as a millet seed. Unilateral nephritis may be the cause of the bleeding or the latter may come from one kidney in a case of bilateral nephritis. Casts and albumen are not essential in the finding of a nephritis; the presence of blood alone may be the only indication of the nephritis. A number of cases clear up without treatment. Others yield to irrigations of the kidney pelvis with adrenalin chloride or nitrate of silver solutions. Decapsulation is often effectual, while some cases will yield only to nephrectomy. The operation of choice in undiagnosed bleeding from the kidney, is polar section, preferably through Broedel's line. Removal of the kidney should not be undertaken, however, before proper function tests have been made.

The Time for Prostatectomy. BENJAMIN TENNEY. *The American Journal of Urology*, July, 1912.

Before the patient suffering from bladder difficulty acquires the catheter habit is the time, according to Tenney, when the operation should be taken. The residual urine at such time is apt to be about 50 cc. or more, the daily calls to urinate are frequent and the patient is wakened once or more at night. Pain follows the failure to empty the bladder if the patient is unable to urinate when the desire comes on. This is the stage of the disease most desirable for operation for the following reasons:

1. There is no hope of spontaneous improvement and every probability that conditions will grow worse.
2. The kidneys have suffered little or none from back pressure.
3. The bladder is still ahead of the bacterial invasion.
4. The amount of material to be removed is less than it will be later and the risk of bleeding is probably less.
5. To avoid the catheter life and sepsis.
6. If the hypertrophy be malignant it is early operation which gives the best chance for complete removal.

A New Cause of Error in Radiography of Renal Calculi. (*Une Nouvelle Cause d'Erreur dans la Radiographie des Calculs du Rein*). G. MARION. *Journal d'Urologie*, May 15, 1912.

Marion reports a case in which the clinical history and physical examination pointed to renal tuberculosis, but owing to the *x*-ray finding of a dense shadow in the lower pole of the enlarged kidney, he was led to the diagnosis of a calculus. At the operation, however, he was surprised to find a large hydronephrotic and pyonephrotic kidney with all the earmarks of tuberculosis. The shadow as revealed by the *x*-ray plate was due to an area in the lower pole of the kidney consisting of an inspissated substance.

The Pathogenesis, Anatomy and Cure of Prolapse of the Rectum. ALEXIS V. MOSCHCOWITZ, *Surgery, Gynecology and Obstetrics*, July, 1912.

Prolapse of the rectum, according to Moschcowitz, is in every essential a hernia. Only from this viewpoint can an intelligent method of cure be arrived at. The ordinary methods invariably fail because they do not take into account the correct pathological and anatomic conditions. The transversalis fascia is the important factor, as it is

in the formation of any hernia. The pelvic part of the transversalis fascia sends an outward prolongation upon the rectum, upon which it gradually becomes lost. Increase in abdominal pressure, such as straining (secondary to heavy work, parturition, habitual constipation, coughing, phimosis, vesical calculi stricture of the urethra, etc.), which will drive the peritoneum into the sheath formed by the outward prolongation of the transversalis or pelvic fascia, is the exciting cause of the acquired form of prolapse of the rectum. The author does not deny, however, that there may be, as in other herniæ, also a congenital variety. The peritoneum, covering the anterior surface of the rectum, is intimately adherent to it, which accounts for the fact that in the prolapse of the rectum, although a true hernia, we do not find a distinct and separable sac. In other words, the hernia is exactly analogous to the so-called "hernie par glissement." The correct treatment is an operation in which the principles of an operation for the cure of a hernia can be carried out. This the author has devised and performed on eight cases during a period of six years. The technic is, briefly, as follows: Median abdominal incision with the patient in the Trendelenburg posture. The rectum is pulled up and held taut. Pagenstecher or silk sutures are then passed circularly around the cul de sac of Douglas, beginning below at a point one inch above the inferior extremity of the cul de sac (and the Douglas may be found surprisingly deep in some cases). Similar sutures, six to eight in number, are passed at intervals, and persisted in as long as the peritoneum comes together until practically the entire pouch of Douglas is obliterated. In the female several of the sutures may be anchored to the supra-vaginal portion of the cervix and body of the uterus. When approaching the rectum, the sutures coming from the sides of the pelvis, catch the serosa covering it in firm and close stitches. This is done to prevent the possible formation of a hernia; in addition, these lateral sutures also materially aid in fixing the rectum to the sacrum and coccyx. The ureters and internal iliac vessels should be guarded against injury. The after treatment is practically that of any laparotomy. Moschcowitz has had ideal results in the eight cases operated by him.

The Treatment of Tuberculous Lymph-Nodes. J. C. STEWART. *The St. Paul Medical Journal,* June, 1912.

In a short article Stewart advocates more conservative treatment of tuberculous adenitis and deplores the fact that so many patients are permanently disfigured by the scars of radical operations. The only indication for radical removal by block dissection is in cases where rapidity in the completion of the treatment is required. Against radical removal are the following points: 1. The whole lymphatic tract being removed, the patient is deprived of the protective action of the lymph-nodes. 2. Tuberculous lymph-nodes tend to spontaneous cure, especially if aided by proper hygienic and dietetic treatment. 3. Usually there are present in the body other tuberculous foci, besides those in the glands. 4. The scars left by radical operation brand the patient as tuberculous.

Stewart describes cases in which excellent results were obtained by the use of *x*-rays in conjunction with aspiration of suppurating glands.

On Three Cases of Acute Hepatic Intoxication Following Abdominal Section in Which Jaundice Was a Marked Feature. VICTOR BONNEY, London. *Medical Press and Circular,* May 22, 1912.

Three cases of delayed chloroform poisoning are described by Bonney, two of them ending fatally and one ending in complete recovery. All three cases occurred in young women with acute abdominal conditions necessitating operation during which chloroform anesthesia was used. The symptoms of poisoning were first apparent after about 24 hours after operation, when the patients became restless and jaundiced. The jaundice increased rapidly and the patient passed into coma. The case which recovered was treated by large quantities of bicarbonate of soda and glucose by mouth and by rectum. The writer emphasizes that chloroform should not be used in acute abdominal conditions, that the urine be examined before operation for acetone and diacetic acid, and that glucose and sodium bicarbonate (4 teaspoonfuls of the former and 1 of the latter to a pint of water), be used as a routine after operation.

The So-called "Mixed" Tumors of the Salivary Glands. L. B. WILSON and B. C. WILLIS, Rochester, Minn. *American Journal of Medical Sciences,* May, 1912.

1. The present study covers 50 "mixed" tumors of the parotid and six "mixed" tumors of the submaxillary glands.

2. Most of the "mixed" tumors of the salivary glands arise in young adults.

3. Most of the tumors cause little inconvenience early and surgical relief is not sought until an average period of about seven years has passed.

4. Our cases show no etiological relationship between the tumors and acute parotitis.

5. The tumors which grossly are hard, consisting of fibrous connective tissue or cartilage are proliferating at their periphery only and are usually benign.

6. The tumors which grossly are soft, consisting largely of parenchyma of types varying from adult to embryonic are those among which are found the malignant tumors.

7. Connective-tissue and parenchymatous elements both tend to revert to embryonic type.

8. There is little evidence that these tumors arise from proliferating adult epithelium, or endothelium.

9. There is considerable evidence to support the theory that these tumors are mesotheliomas of embryonic origin.

10. After fairly complete operative removal few of the tumors recur.

The Use of Zincporaplast in Surgery. (*Zur Verwendung des Zinkporaplast in der Chirurgie*). F. FRANKE, Braunschwerg. *Zentralblatt für Chirurgie,* June 1, 1912.

Franke is very enthusiastic as to the value of Zincporaplast to prevent infection of operation wounds which are liable to come in contact with various secretions, excretions, pus, urine, feces, etc. Zincporaplast is a plastic preparation devised by Unna. It is applied to and around the wound over which it forms a firm protection covering impervious to any fluid. Among its more important applications the author mentions: Herniotomies in children, wounds which are notoriously liable to infection by urine; gastrostomy; artificial anus; perineal operations and mouth operations.

Infections Following Tonsillotomy with a Consideration of the Forms of Such Infections. HENRY KOPLIK, New York. *American Journal of Medical Sciences,* July, 1912.

Koplik reviews the literature of the subject and reports a number of cases. He describes three types of infection following tonsillotomy:

1. The form which runs an obscure fever for a week or more without causing any endocarditic or other lesions.

2. Those cases which run a temperature and combine with them the manifestations either of a mild infectious endocarditis, or in which, as in the case of chorea, the endocarditis takes on a severe infectious (or, as it is called, malignant) type, with subsequent fatal issue.

3. A third form of sepsis is that in which the infection is evidently severely hematogenous and causes destructive blood changes, with signs of sepsis such as profuse hemorrhagic ecchymotic areas on the surface of the skin, petechiæ, severe hemorrhages from the bowel, and areas of bronchopneumonia.

The Management of Gonorrheal Rheumatism. EUGENE FULLER, New York. *Medical Record,* June 15, 1912.

In this paper Fuller again reaffirms his conviction that the persistence of gonorrheal infections of the joint is due to latent focal infection of the seminal vesicle. He has noted three types of gonorrheal rheumatism. 1. The acute form. In these cases the seminal vesicle is found acutely inflamed and much swollen. 2. The subacute form. There is a history of gonorrhea dating many months or years previously. The joints present evidences of an arthritis of the more chronic type, resembling in

some ways a tuberculous arthritis. 3. Cases of arthritis presenting manifestations of a long standing arthritis with its associated secondary changes, stiffness, adhesions muscular atrophy. The involved joints may be multiple, and in many instances the symptoms are not even associated with a gonorrhea. In classes 2 and 3 the seminal vesicles are found involved but with evidences of chronic inflammation.

The operation of seminal vesiculotomy is followed in the majority of instances by prompt cure or a marked alleviation of the symptoms. It is obvious that a long standing arthritis cannot be restored to normal by merely removing the seminal vesicles. In such cases various mechanical measures, manipulation and massage are necessary. Fuller does not believe in resorting to these measures too soon after operation. He allows a period of two months to elapse. Fuller has done seminal vesiculotomy 251 times without mortality. In 122 of these the operation was done for gonorrheal rheumatism.

The Technic of Transfusion. E. H RISLEY and F. C. IRVING, *Boston Medical and Surgical Journal,* June 27, 1912.

The authors have investigated the feasibility of practically all the well known methods of transfusion and conclude that the method of Brewer and Leggett, viz., that of paraffin coated glass tubes, is by far the simplest, easiest and the most practicable. They describe the technic of the procedure in detail. All the previously advocated instruments are too complicated or require too much skill, but of these they found the canula of Elsberg the most practicable. The glass bulb of David and Curtis is simple, safe, and affords accurate measurement of the blood transfused. The method of Hartwell and Deaver, in which the transfusion is done without the aid of any mechanical device, has the disadvantage that it requires too great a dissection.

Does Cholecystenterostomy Divert the Flow of Bile From the Common Duct? EDWARD ARCHIBALD. *The Canadian Medical Association Journal,* July, 1912.

After discussing the important rôle played by the common bile duct and its obstruction in cases of pancreatitis, the author brings forward experimental evidence to show that the operation of cholecystenterostomy does not divert the flow of bile from the common duct, and that therefore it is not the operation of choice. Dogs were operated on, and in eight cases an anastomosis was made between the gallbladder and an isolated loop of gut, one end of which was sewed up, while the other end was implanted into the abdominal wall so as to discharge its contents externally. In none of these cases did more than a few c.c. of bile escape into the gut, although at autopsy the aperture connecting the gall-bladder and the intestine was found to be large and patent. As the author states, "The natural conclusion would seem to be that, unless the obstruction to the common duct is considerable, and bids fair to be permanent, in cases of subacute or chronic pancreatitis it is useless to do a cholecystenterostomy in the expectation of securing permanent bile diversion." The author believes that in view of the experiments, and from the fact that in cases treated by cholecystenterostomy a much freer flow of bile is obtained, this is the operation of choice in cases of chronic or subacute pancreatitis.

Tetanus as a Complication of Burns. CHARLES NEWBERGER, Chicago. *American Journal of Diseases of Children,* July, 1912.

The author describes two cases of tetanus complicating severe burns in children aged, respectively, 5 and 6 years. In each instance the symptoms set in on the eighth day after the burn, and the complication proved fatal after about 26 hours. Newberger has collected 49 cases reported in the literature, and from a study of them draws the following conclusions:

1. Tetanus is not an infrequent complication of burns.
2. The mortality is greater in cases occurring in the warmer months of the year.
3. Tetanus complicating burns involving the trunk is more serious than when the burn is on other parts of the body.
4. The longer the incubation period the less the mortality.
5. The greatest number of fatalities occurs early in the complication.
6. Prophylactic injection of tetanus anti-toxine is advisable in all cases of serious burns.

Fracture of the Patella. W. E. HARWOOD, Eveleth, Minn. *The Journal-Lancet,* July 15, 1912.

The author summarizes the treatment of this injury as follows:

1. Simple transverse fractures with less than one-third of an inch of separation of the fractures, with a small amount of joint effusion, and without interposition of any tabs between the fragments, should be traced conservatively.
2. In simple fractures in which there is greater separation than one-third of an inch, a great amount of distension, and interposition of tabs, and where the patient cannot raise his heel from a straight level, an open operation should be done, if the case is in the hands of a surgeon thoroughly trained in asepsis and under rigid aseptic conditions.
3. All compound factures must be operated on.
4. Massage of the quadriceps is commenced two or three days after the injury. Three weeks later the patella itself and the entire leg are massaged, and guarded passive motion used. Four or five weeks after the injury active motion is attempted.
5. Ankylosis will disappear without the forcible breaking up of the adhesions.

Actinomycosis Treated With Vaccines. R. KINNICUTT and W. J. MIXTER, Boston. *Boston Medical and Surgical Journal,* July 18, 1912.

The authors report the result of treatment on eight cases. It was difficult to make an accurately standardized vaccine owing to the physical properties of the actinomycosis organism, but a satisfactory vaccine was made in a rather rough manner. For the details the reader is referred to the original paper. Two cases of thoracic actinomycosis and one of abdominal actinomycosis, died soon after treatment was begun. One case of the abdominal actinomycosis recovered. Of four cases of actinomycosis of the jaw, three recovered and one is improving. In one case the rapid improvement was striking. While it is difficult to judge from these few cases the exact value of the vaccines, the authors believe that they have been of benefit.

Results and Technic of Röntgen Treatment in Gynecology. (*Erfolge und Technik der Röntgenbehandlung in der Gynäkologie*). H. E. SCHMIDT, Berlin. *Berliner Klinische Wochenschrift,* July 1, 1912.

Schmidt reports his experiences in 27 cases. In 76 per cent., amenorrhea, oligomenorrhea or normal menstruation was brought about. Of these cases, 19 were myoma, in four of which beneficial action was not obtained. Of five cases of menorrhagia not due to myoma, four were cured. One case of dysmenorrhea was not benefited. The author is convinced of the great value of *x*-rays in metrorrhagias. The older the patient, the more the likelihood of a favorable result. The technical features of this paper are too complicated to permit a satisfactory review.

A Case of Ligneous Thyroiditis. GEORGE R. MURRAY and F. H. SOUTHAM, Manchester. *Lancet,* May 4, 1912.

This rare malady is also known as Riedel's disease. The patient was a young man who had noticed a slow enlargement of the neck for one and a half years previously. This was attended by gradually increasing dyspnea, stridor and dysphonia. A very hard, dense, painless swelling of both lobes of the thyroid was noted. At operation, the thyroid was white, hard and densely adherent to the surrounding structures. Both lobes and the isthmus were removed; the compression of the trachea, however, was not relieved until some dense connective tissue bands in front of it were separated. Myxedema developed after the operation, which was controlled by thyroid substance. Microscopic examination showed a profound fibrosis. The fibrosis of Riedel's disease differs from that associated with myxedema by the fact that the connective tissue penetrates the capsule. The above picture and phenomena correspond to the classical features of this malady. The cause is unknown.